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Religion and Science

A Sermon preached in the Queen's Chapel of the Savoy on June 2nd, 1959, on the occasion of the Corporate Service and Commemoration of Benefactors of the Royal College of Veterinary Surgeons

BY

THE REVEREND G. A. WILLIS

Those who were present in the Queen's Chapel of the Savoy on R.C.V.S. Day were privileged to hear a sermon of notable quality preached by a member of the profession now in Holy Orders. A number of requests were made to the Editor of THE VETERINARY RECORD *that the sermon should be published, and the opening of what is largely a scientific Congress seemed the most appropriate time. We are very much indebted to Mr. Willis for permission to reproduce his words.*

Genesis I 26-27. And God said, Let us make man in our image, after our likeness: and let them have dominion over the fish of the sea, and over the fowl of the air, and over the cattle, and over all the earth, and over every creeping thing that creepeth upon the earth. And God created man in his own image, in the image of God created he him.

I SUPPOSE that when most of us set out to read a book we generally begin at the first page. Maybe that is one of the reasons why the Bible is read so little in our own day. As you know, the Bible is in fact not just one book but a collection of books of differing value and varying importance, and if we want to understand the heart of its message and see the whole of its teaching in proper perspective it is best not to start at page 1, for what is contained there has probably given rise to more conflict of thought in the past hundred years than any other printed words. Nowadays the fires of that conflict have largely died down, but there remains, as a consequence of it, a feeling in the minds of perhaps a majority of ordinary people that much of the contents of the Bible, and in particular of the early chapters of Genesis, can be dismissed not only as irreconcilable with the findings of science but also as unimportant and indeed irrelevant to modern life and contemporary thought. If the words of one of our 20th-century popular scientific writers are to be accepted then "Darwin's Origin of Species is to-day a good deal more profitable as theology than the first chapter of Genesis." That statement reveals, I consider, a confusion of thought between two profoundly different things, a theological doctrine of creation and a scientific doctrine of origins. There is such a difference, but there have been many who have refused to acknowledge it, not least those on the side of religion who in the last century saw themselves called to defend what they believed to be their rightful cause against the attacks of the evolutionary scientists.

The tragedy of that controversy was that it was quite pointless, and yet it was without doubt a powerful factor in opening up the breach which now exists between much of the Christian faith and the common life. It was pointless, for I am sure that Genesis was never intended by its authors to be a scientific account of how the world came into existence; it is not a collection of the guesses of primitive men at the answers to scientific questions. It is dealing wth matters beyond the scope of the scientific method: its theme is man's relationship with God, of his primary dependence upon and responsibility towards God, and of his alienation from Him. And that theme is dealt with in the only language in which it is possible to deal with it, the language of parable and of poetry. Of course there are those who will tell us that there is no truth other than scientific truth, that nothing which cannot be verified by the scientific method of observation, induction, experiment, and verification can be called knowledge. As if, for instance, a cosmologist might claim that our only hope of learning the truth of the universe lies in bigger and better radio-telescopes. Perhaps those of us who live in the country and have ample opportunity of studying the stars on a clear winter's night may consider that there is a deeper truth about the heavens contained in Shakespeare's very non-scientific language:—

"Look how the floor of heaven,
Is thick inlaid with patines of bright gold;
There's not the smallest orb which thou behold'st

But in his motion like an angel sings,
Still quiring to the young-eyed cherubims:
Such harmony is in immortal souls,
But whilst this muddy vesture of decay
Doth grossly close it in, we cannot hear it."

It is not that the scientist and the theologian, the laboratory worker and the contemplative poet are studying different aspects of the truth? Each in his own field seeks the underlying unity of things but each, being human, is prone to a tendency to trespass into dogmatism on subjects upon which he is not qualified to pass final judgment. Intellectual humility is a hard lesson for all of us to learn. But there is, I believe, a growing understanding on both sides that the so-called conflict between science and religion is by no means as great as it was once imagined to be and that each side has a great deal to offer to the other. As an instance of this on the side of science perhaps I may quote Professor A. C. B. Lovell who, towards the end of his recent Reith lectures on the origin of the universe told us how it was possible for the scientist to envisage a primeval atom from which the universe emerged some twenty thousand or sixty thousand million years ago but, in his opinion, to attempt to go beyond that was to cross the boundaries of physics into the realms of philosophy and theology. . . . "I am certainly not competent to discuss the problem of knowledge outside that acquired by my scientific tools and my outlook is essentially a simple one. Simple in the sense that I am no more surprised or distressed at the limitation of science when faced with this great problem of creation than I am at the limitation of the spectroscope in describing the radiance of a sunset or at the theory of counterpoint in describing the beauty of a fugue." Perhaps we may add that if the theologians had always shown a comparable humbleness a great deal of misunderstanding might have been avoided. Some of the attempts to defend a literal interpretation of the creation narratives of Genesis were so ludicrous that it is not surprising that many thinking men should have come to believe that there is no truth to be found there.

But there is truth. Within those parables found in the early pages of the Bible there is profound truth, not scientific truth, not truth which can be stated in psychological terms not even in the language of philosophy or theology, but truth which can only be apprehended in personal encounter. The parable of the Creation does not offer us a theory of how the world came into existence, the parable of the Fall of Man does not offer us a scientific analysis of human nature. But to any man who has ears to hear, what those passages offer is personal understanding about his very existence, about his ultimate dependence upon God, about his separation from God and his need for reconciliation with Him. "And God said, Let us make man in our image, and let them have dominion . . . over all the earth." The truth which I find in those words is that God in making man has given to him a share in His own divine activity of creation, and I believe that we may justly claim that in the onward march of science and the great dominion over the created order which man has thereby achieved God's purposes in creation are being worked out—in part.

As the scientist in his pursuit of the truth provides bases for further control over the forces of nature we may surely see in his work a partial fulfilment of the divine intention that man should replenish and subdue the earth over which he has been given dominion. But that is only part of the truth. There is the further truth that man is himself a part of the created order and that all his powers are given to him to be exercised under the authority of his Creator. Man is not lord of creation in his own right; he is here as God's agent, to work not his own will but God's, and ultimately he will be responsible to God for his stewardship. When man loses sight of that truth then the application of scientific discovery brings not a blessing but a curse, and if he persists in his blindness then he will make on earth not a paradise but a gigantic dust-bowl or a final Hiroshima.

Have we any hope that man may learn to exercise aright the God-like powers over nature which now lie within his grasp? We have such a hope, but only insofar as we recognise that it does not lie within ourselves, but in God. For the Genesis story is not the last word on the subject, indeed it is but the prologue to the story of man's redemption which is the central theme of the Bible, a redemption finally and completely secured by the action of God Himself within the created order in the person of Jesus Christ, God's Creative Word made flesh. Perhaps the last word is to be found in the final book of the Bible rather than the first. There, in his majestic vision, St. John the Divine opens for us the doors of heaven and shows us a picture of the whole of creation, redeemed in Christ, making its proper response to its Creator, the response of worship; offering back to God in humility and adoration all that He has made, all that He is worthy to receive. It is a picture of awe and wonder calculated to strike awe and wonder in the hearts of those who apprehend it. But does that awe and wonder belong only to those regions? The scientist whose heart leaps as the light of understanding and discovery dawns, the practising veterinary surgeon who, in the response of his patients to his treatment, so often has cause to echo the words of the surgeon Ambrose Paré: "I tended, God healed," are they not also experiencing something which is an awakening call to man to make his response to the Creator who has endowed him with a share in His own creative powers? It is only a glimpse, perhaps, and it is easy to ignore it. When the awe and wonder which are associated with scientific work are stifled or suppressed, it is then that the link with our Creator is broken and the response dimmed, and it is then that our purposes begin to go awry. Rather than ignoring it or stifling it should we not recognise it for what it is, as the very stuff of worship; man, to whom God has given so much creative ability, making his instinctive response to the Almighty; our acknowledgment of our own creaturely dependence upon God?

And when that instinctive response is extended into something much greater, into a total offering of the will freely made to God in personal commitment to Jesus Christ, who in His own perfect self-offering has restored the breach between God and man, then we may begin to hope that our creative activity is truly in accord with the purposes of God. It is then that our work can bring us not only much joy and high satisfaction, but the greatest reward of all, the knowledge that in our humble efforts something of God's will is being done, in earth as in Heaven.

SYMPOSIUM

The Future of the Veterinary Profession*

E. C. Straiton: C. E. Woodrow: A. G. Ralston: R. S. Marshall

Large-animal Practice

BY

E. C. STRAITON

Stafford

IT is fascinating to speculate what the future—even the immediate future—holds for those of us in large-animal practice. Shall we live to travel from farm to farm by helicopter and perhaps make use of techniques based upon some aspect of nuclear physics? The progress of applied science, which includes our own science, is now so rapid that literally anything might happen.

Apart from such speculation, however, our future, by which I mean our professional future, depends entirely upon ourselves. It is my view that in these years we are at a parting of the ways; we must either go boldly forward, or accept a kind of professional defeat and take the lower road to being mere appendages to the agricultural industry or to our colleagues in other sciences. I wish I did not fear so much that we might take the low road. We are a small profession and, therefore, have the opportunity of being a very highly organised one; yet it seems to me that there is no more disorganised profession than our own. We are far too individualistic, far too ready to go on our own road, and far too blind to the fact that one or two sources of professional income like tuberculin testing have a disproportionate place in our economy.

Some of us comfort ourselves with the idea that the Ministry will decide upon fresh eradication schemes, perhaps for Johne's disease or brucellosis, and that these will fill that part of our practices left empty when tuberculosis has been eradicated. But supposing this proves to be only an illusion and the Ministry does not undertake fresh eradication schemes. Where will some of us be then?

May I suggest that one of our shortcomings is not merely a turning away from unpleasant possibilities, but even a readiness to decry and to denigrate those who insist upon drawing our attention to them. It is of no use to think that we can shut ourselves up in a comfortable professional attic, and from there view with nonchalance the problems and struggles of other professions while pretending we have none of our own.

I speak for myself when I say in all humility that one of the greatest personal problems that besets the professional man in early middle age is that of getting into a rut, and losing all sense of the adventure and the excitement of life. By the time one is, say, 40 one has tackled with reasonable success practically every job that has to be done in large-animal practice. Occasionally one sees a case that revives the old enthusiasm, but it is fatally easy for each day to become an uninspiring repetition of the day before. Yet is it not true to say that the well-being of our profession rests, to a very large extent, on the shoulders of those in their middle years? They have an immense experience, they have personal maturity, and they should have—that is where the rub comes—a share of youthful vitality. In saying these things I am only too conscious of my own deficiencies and I have asked myself what can be done about them.

Three Considerations

There seem to me to be three lines upon which our minds can usefully work. Firstly, we must be much more ready to give our services to our professional associations. We should spare time for divisional meetings. We should take a close interest in the work of the Council of the B.V.A. We should follow the activities of the Royal College (the Minutes of whose meetings are published regularly in the SUPPLEMENT to THE VETERINARY RECORD), and we should consider offering ourselves as candidates for the Royal College Council. It may be retorted that there are plenty of people doing these things already and, therefore, we need not as individuals trouble our heads about them; but my own feeling is that there is a tendency for the direction of our profession to be left in the hands of the older members, and while we appreciate the great value of their services, there should be a far larger representation on official bodies by younger men.

Secondly, we need to specialise very much more than we do. I would like to see practices where there are several partners—or a partner with several assistants—delegating certain specified procedures to each person in addition to his normal routine work. In this way the veterinary surgeons could combine as a team, each complementing the efforts of the other rather in the manner of the group practices which are one of the ideals of the medical profession. In my own small way I am attempting this in our practice where there are 5 of us. I am happy to say that my colleagues are keenly interested; and if we can weld ourselves into a team I believe it will be possible to give to our clients a much better service than we have supplied hitherto.

In turning my thoughts to the subjects in which I, personally, want to specialise, I am depressed at my own ignorance and inadequacy. There is so much to learn, so wide a literature to be covered, and so much new experience to gain. However, we are going to have a shot at this new idea, and we are going to combine it with the creation of a

* Presented to the Central Veterinary Society on October 2nd, 1958.

fair-sized hospital to replace the small one we have at the moment.

Basic Fees

I hope I may be excused these references to my own practice. I make them only because one has, naturally, a first-hand knowledge of one's own affairs and is, therefore, in a position to make suggestions to others arising from trial and error. There is nothing we are attemping that other veterinary surgeons cannot do, and I hope that colleagues all over the country will consider this possibility of specialisation, combined with the offer of hospital facilities.

Lastly, I feel it to be essential that we should have a scale of basic fees; and by "basic" I mean fees in relation to mileage and turn-out. Other professions, for example the legal profession, have set charges for things like arranging the purchase of one's house; and if they can do it I don't understand why so many difficulties are raised about our doing the same thing. An essential corollary to scale fees would be decisive action by the Royal College against fee-cutting and other forms of unprofessional competition. I am of opinion that unless we set our house in order in this matter the time will come when we may be obliged to face the threat of nationalisation—which God forbid!

But let me end on a more optimistic note. There is no reason why we should not adopt specialisation and thereby offer a more effective service to our clients. There is no reason why we should not serve our profession's official bodies to the very best of our ability, and so help them to do what is best for us all. There is no reason why we should not develop much further the employment of lay assistants (and in that connexion I am a warm supporter of the proposal to establish a qualification for animal nurses). There is no reason why we should not have a just scale of fees commensurate with the services we provide for the community. It all depends upon ourselves—it is as simple as that.

Small-animal Practice

BY

C. E. WOODROW

London

I AM afraid that my contribution to this symposium will be less definite, less dramatic perhaps, than those from the other speakers. The reason for this is simply that the future of small-animal practice in this country is not dependent on changes in Government policy whether from the Colonial Office, the War Department, or the Ministry of Agriculture. In other words—and this is something for which we can be profoundly grateful—the future is in our own hands. We are entirely free, and likely to remain so, to shape this future as we will. I think the outlook is less dependent on the ebb and flow of national prosperity, the rise and fall in the fortunes of farming; and this in spite of the undoubted fact that our branch of practice caters for a luxury and is not essential, as is farm practice, to the life of the community. But the dog, the cat, the budgerigar, are to-day just as essential a part of the British home as the television, the refrigerator or the washing machine.

In considering the future of small-animal practice we must remember that such practice is no longer a separate entity, but is taking an ever-increasing place as an integral part of country practice. If any proof were needed of the importance of small-animal practice both to the town and the country practitioner we need only look at the success of the first small-animal congress in Britain. This was attended by no fewer than 270 practitioners, many of them from the country, and we may note also the much higher proportion of papers devoted to small animals at this year's B.V.A. Congress.

To those of us who work with small animals only, and who are in practice in London where we have the opportunity of seeing many cases which have been treated by country practitioners either while their owners are on holiday or staying at their country estates or cottages, the standard of medical and surgical treatment they receive is a source of great admiration and often a real challenge to our urban and presumably specialist ideas.

I have divided the outlook, for small-animal practice as I see it, into two headings; namely, the probable trends of development in surgical and medical treatment, and the prospects for those engaged either wholly or in part in small-animal practice. I think, perhaps, that the most striking change which has occurred during my years in practice is the ever increasing emphasis on prophylaxis. By this I mean not only vaccination against distemper and hard pad disease, leptospirosis, and feline enteritis, but also the advice we are called on to give with regard to breeding, weaning, hygiene and diet. In these days of canned dog foods, dog biscuits in immense variety, and the daily demand for information by vitamin-conscious owners, we small-animal practitioners would welcome the publication of much more work on diet. An immense amount of research work has been done but the results are not readily available to us. Martin has pointed the way, in his admirable paper here at the Central, on the diet of the chronic nephritic; and Miss Joshua (1958) also has enlightened us on the rôle of fat in the causation of certain skin conditions.

This increasing ratio of prevention to treatment will continue, and I hope and expect that in the near future hepatitis vaccination will be a further addition to our protective armoury. At this point I would like to digress for a few moments to give a word of warning. During the course of my remarks at the opening of the small-animal congress, I referred to the absence of any papers or discussion on virus diseases in the dog, an omission which would have been unthinkable 5 or 6 years ago. I expressed the opinion that the nation-wide use of egg-adapted distemper vaccines appeared to be setting up a barrier through or over which the distemper virus was finding it increasingly difficult to pass, and that it might be possible in the foreseeable future to eradicate this scourge, or at least to reduce

it to the comparative incidence of smallpox or diphtheria. Unfortunately, during the last few weeks, there have appeared what may well be the first danger signs, in a recrudescence of what may prove to be a mutation of the distemper virus. A certain pattern is already becoming manifest; namely, the only partial protection provided by egg-adapted virus, the high incidence of chorea, and an extraordinary increase in age incidence affecting a number of dogs from 5 to 10 years of age. I hope I may be wrong, but we might be in for a really serious epidemic by November or December.

Scientific Approach to Diagnosis

The other great change I have seen, which will and must develop, is the more scientific approach to diagnosis. The days of empiricism, the bottle of medicine or box of pills, the intuitive diagnosis, are giving way to the everyday use in the small-animal surgery of all the diagnostic aids which are readily available to us. For example clinitests to facilitate the complete examination of urine, blood tests for urea concentration in the assessment of chronic nephritis and of blood sugar, and serum amylase for the detection of disease of the pancreas. We can also carry out blood counts and haemoglobin estimation fairly readily, together with the usual microscopic examinations of skin scrapings.

We should expect to make increasing use of laboratory facilities in identification of neoplasms; in bacteriological examination, in agglutination for leptospirosis, in complement fixation tests for hepatitis. Now, too, we have available sensitivity tests for the various antibiotics, and the possibility of the diagnosis of the distemper complex by tissue culture.

In the field of surgery the way has been shown for an increase in joint and ophthalmic surgery and in cervical disc enucleation. The increased safety of anaesthetic techniques and the use of relaxants makes possible more complicated and longer surgical interference than has been possible in the past, and we shall expect to see more practical details of hypothermia. An immense amount of experimental work on this subject has, of course, been done on the dog both in this country and in the United States.

Among other subjects of which we hope to have a more thorough understanding in the future are the heart, skin, and central nervous system.

Future Prospects

The second heading under which we might consider the future of small-animal practice deals with the prospects for those engaged in it. Can it provide a standard of living and status appropriate to a professional man, and a financial return commensurate with the cost of training and the time required to qualify? Pessimists in the profession take the view that the reduction in, and final eradication of, tuberculosis will lead to a much smaller demand for assistants in country practice. With a corresponding reduction in the Colonial service, and a yearly increase in the output of graduates it is said that great numbers will be forced into small-animal practice. Combine this, continue the pessimists, with the increase in the number of welfare clinics and the improved facilities which they will offer, and the outlook is black indeed. You may remember Mr. Ritchie dealing very thoroughly with this anxiety in answer to questions put to him after his paper here on the future of the animal health services of the Ministry of Agriculture. Mr. Ingram, in his Presidential Address to the 26th annual congress of B.V.A., said that the virtual eradication of bovine tuberculosis by 1961 or 1962 will rank as one of the greatest triumphs of our profession, and it is to be hoped that all services will again be utilised to the full in attacking one or more of the other great scourges—referring to Johne's disease, brucellosis and swine fever.

I have referred before to the decrease in the population of town dogs due to the great rehousing schemes and the fairly general council ban on dogs and cats in the new flats. The reduction in the L.C.C. area was from 154,000 in 1949 to 129,000 in 1956, and to 124,000 in 1957. In the Middlesex area the reduction was from 130,000 to 118,000 during the same period. This decrease has seriously affected the numbers of dogs and cats treated by the welfare clinics but has had less repercussion on the veterinarian in private practice. As a corollary the increase in cage birds from half a million in 1947 to 6 million in 1956 has created new patients and new problems for the small-animal practitioner, problems which have been eased by the appearance of some excellent papers on the subject.

It seems to me that the arguments and anxieties regarding competition from welfare clinics are much exaggerated. I feel that any small-animal practice which keeps up to date in its premises, techniques and records has nothing to fear. Some welfare societies provide modern and impressive surgeries, consulting rooms, and hospitals, and we must, perhaps, take a new view of our own premises, and try to look at them through the eyes of a new client arriving for the first time. It is difficult to do so: that which we live with every day becomes so familiar that we are unable to see dilapidations, lack of cheerful decorations, dirty floors, examination tables, or coats. Admittedly rebuilding, redesigning and redecorating can be a very expensive business but a lot can be done with the modern paints and other materials available to give a new look to our premises. Among one's clients are sure to be some who have a flair for colour and interior decoration, and such people love to be asked for their advice. Modern decor and lighting in the waiting room, clean and sensible chairs, kitchen chairs which are gay and washable are available quite cheaply to-day, new periodicals (and the ruthless weeding out of the old), a bowl or two of flowers—these things make a world of difference.

The first impression is most important and the new client then comes into your consulting room in the right frame of mind. The consulting room must then be clean and fresh, with good lighting, fresh paint, a clean examination table (*i.e.* cleaned down after each case), a comfortable chair for the client, and a suitable desk for the practitioner.

Now comes what I feel is, perhaps, the most

important advantage we have over the clinics—full and accurate records. Half the consultation time might well be spent in recording the history of the patient, and in doing so getting to know the client. The personal interest so generated will ensure that the client remains with one throughout the lifetime of the animal. The clinics cannot keep, and have available on all future occasions, a complete record ready to hand for each future consultation. It is this which establishes the ideal practitioner-client relationship of mutual trust—the old G.P./family regard, which is perhaps rather lost to-day in the national health service.

Clients and Clinics

Owners attending charitable clinics, even where there is no attempt at proper almoning, can roughly be divided into 3 categories :—

1. The genuinely poor owners. Anyone who has conducted clinics in the poorer areas of London, as I have, knows what a tremendous burden of uneconomic work such clinics remove from the private practitioner. We could not cope with all these cases in our private practices, however great might be our desire to help.

2. The owner who, probably, can perfectly well afford the proper economic cost of the treatment of his animal, but wants something for nothing. An ever-increasing number of such people have grown up in the welfare state, and have come to regard as a matter of right the care and attention they now receive from the cradle to the grave. Do we want them as clients? They are the type who fluctuate, in the absence of free treatment, from one practitioner to another as they run up their accounts and are refused more credit. Bad debts!

3. This class is the one which will gravitate from the charitable clinic to an efficiently run private practice. Such people soon tire of having to wait in the often crowded waiting rooms of the charitable clinics and take the view that they would rather receive the personal attention they feel to be their due. They will tell one that when an animal is presented at a welfare clinic the official in charge may be too busy to go fully into the history, or to maintain a complete record of the case from visit to visit. It is such considerations—together, often enough, with advice from friends—which lead them to give up the supposed benefits of getting treatment for nothing in favour of paying a veterinary surgeon in private practice.

So why the anxiety about the future developments of charitable clinics? Admittedly there are serious grounds for complaint in that the cases treated by the clinics during the day demand the attention of the local veterinary surgeon during the hours that the clinic is closed. But this, I feel, is outweighed by the "siphoning off" of the genuinely poor owners whom, with the best will in the world, we could hardly serve on a regular basis without fee.

Finally, if I were questioned by a young graduate on his prospects in small-animal practice my advice to him would be this :—

"If you are fond of dogs and not afraid to show it, and can put up with people; if you are prepared to work hard and keep ahead of the times in your diagnosis, treatment and surgical techniques, you will most certainly succeed. Let your loadstone be—to paraphrase a well-known quotation—'to cure the patient sometimes, to help often, and to understand and comfort the owner always'."

Reference

JOSHUA, J. O. (1958) *Vet. Rec.* **70**. 193.

The Royal Army Veterinary Corps

BY

BRIGADIER A. G. RALSTON

BEFORE embarking on this short paper, I would like to express my thanks to the President and committee of your society for their courtesy in affording me the opportunity of addressing you on a subject which, contrary to the usual custom, has no scientific or clinical significance. Nevertheless, I hope my somewhat tentative forecasts may be of some interest to members of the profession generally, as well as to past and present members of the Royal Army Veterinary Corps who may feel more directly concerned.

In this era of great advances in mechanisation, automation, electronics, ballistic missiles, man-made satellites and, above all, of nuclear fission, there must be many who wonder if human beings, much less animals, will have any noticeable rôle in the armies of the future, the whole affair being left to mechanical robots launching their thunderbolts at each other by the application of pressure on the appropriate control button. We have not, however, quite achieved such an advanced state of "civilisation" and in the meantime we are assured by the highest military authorities that the human factor will still be the one upon which the outcome of battles will depend. That being so, is it too fantastic to predict that, given certain circumstances, animals, too, may have a part to play?

To illustrate my point, may I make a brief reference to the comparatively recent past? As you may recall, in the years immediately preceding the last war great strides had been made towards the full-scale mechanisation of the army. It became accepted (a little late in the day it is true) that the cavalry troop-horse was no longer destined to play any part in modern warfare. On the other hand it was rightly held that, in India, if nowhere else, the pack mule could never be adequately replaced by any mechanical vehicle in providing the transport required by a field force operating in mountainous country.

The outbreak of war in 1939 resulted in a moderate expansion of the R.A.V.C. In the Middle East, veterinary cover was provided for the cavalry division which had been sent out to Palestine. As far as I am aware, this example of the mis-employment of horses in modern warfare was the first and last to occur in the 1939-45 era, reflecting, as it did, little credit on the evolution of military thought during the years between the two wars. Of greater value

to the war effort was the organisation by the R.A.V.C. of livestock depots in Palestine and Syria. Veterinary officers supervised the purchase of cattle and sheep to stock the depots, their conditioning in the depots, and subsequent issue to the troops. Between 1942 and 1946 these depots dealt with 39,500 head of cattle, 307,000 sheep, and 69,690 goats. Not only were the troops enabled to enjoy a ration of fresh meat of good quality, but the saving in shipping space proved to be of the greatest value at a time when that commodity was in extremely short supply. India contrived to outrival the Middle East in numbers of slaughter animals dealt with, 770,700 being examined on the hoof and 676,800 issued for slaughter, all under veterinary supervision.

In the meantime, pack transport was employed in Eritrea and Greece, but it was not until the invasion of Burma by the Japanese in 1942 that the pack animal really came into its own, and continued to give essential service until the end of the campaign. Later, in the course of the Italian campaign, when, in 1943, the fighting moved into mountainous terrain, mules were once more called into service on a considerable scale and were retained with the army until the conclusion of operations in 1945. Altogether, in the course of the Burma and Italian campaigns some 24,500 horses, 65,000 mules, 3,600 camels, and 8,800 transport bullocks, were employed. Obviously, mechanisation had not provided the complete answer to the army's transport problem!

Turning to the R.A.V.C. officer structure at the outbreak of war; there were then serving with the Corps 85 British and 17 Indian officers, a total of 102 of whom 76 were in India. By the end of the war, 519 officers had served with the R.A.V.C. and Remount Service. British other ranks increased from 105 at the outset to 3,839 by April, 1945. I have inflicted these statistics upon you in order to illustrate how the R.A.V.C. and I.A.V.C. were called upon to meet a completely unexpected demand upon their comparatively slender resources, a demand which could only be met by expansion on a very large scale. It does not need emphasising that expansion could not have been accomplished swiftly, smoothly, and efficiently, had there not been in existence a Corps prepared to organise and train the "new entry"; raise the new R.A.V.C. units required; and provide the experienced officers and N.C.O.s necessary to administer them.

So much for the past—in what direction will the R.A.V.C.'s responsibilities lie in the future?

Future of the R.A.V.C.

As you may have gathered from my previous remarks, it is my view that our first and most important aim must be to provide the peace-time organisation upon which expansion can be based in the event of war. We do not antipicate that the numbers required would approach those of 1939-45; but, should the course of hostilities involve fighting in mountainous country, jungle, or swamp, pack transport would certainly be required. The R.A.V.C. must, in that event, be prepared to provide the animals, train the personnel, and raise the R.A.V.C. units needed to provide the appropriate veterinary and remount cover for the field force. In addition to forming a cadre for expansion on mobilisation and apart from certain changes in connexion with guard dog duties, which I will refer to later, the Corps will, in general, continue to function along the lines laid down immediately after the last war. The R.A.V.C. Training Centre & Depot will remain at Melton Mowbray as the headquarters of the Corps. There the remount wing provides for the reception, quarantine, training, and veterinary treatment of remounts for issue to the Household Cavalry, King's Troop R.H.A., R.A.S.C., R.M.P. etc. It is planned to improve the existing equine and canine hospital accommodation and equipment and bring them more into line with modern practice. The School of Farriery will continue to train most of the army's farriers while the Long Course for equitation instructors of the mounted units will be held at the Depot each winter, as in the past.

It is the intention that the R.A.V.C. School and Laboratory will remain in being to provide the Corps and the army with a laboratory service, X-ray facilities, and instruction in animal management. This it has done for the past 78 years. It was, incidentally, at this School that Davenport, Pryer, and Oxspring carried out their pioneer researches into equine radiography. This traditional interest in the employment of X-ray as a diagnostic aid has been diligently developed and extended to the canine field.

In the course of the next 9 months the Corps will hand over the army guard dog units to the R.M.P. Three units are involved. They are located at Singapore, Hong Kong, and Cyprus, respectively. The R.A.V.C. will, however, continue to be responsible for the provision of all army dogs and for their training and that of their handlers. Responsibility for special types of dogs required for employment on operations and internal security duties, such as tracking dogs, patrol dogs, mine-detecting, and arms-recovery dogs, will remain with the R.A.V.C. as will, of course, the provision of the veterinary staff required by the guard dog units, each of which will include in their establishment a veterinary and training section R.A.V.C., commanded by a veterinary officer. The war dog training unit in Malaya, where dogs and handlers are trained for jungle operations, will continue as a R.A.V.C. unit, as will the dog-training units in Germany and England, the latter being included in the establishment of the Depot at Melton Mowbray.

In looking to the future, it would be quite impossible to ignore the necessity for evolving a comprehensive plan of action in the event of this country being subjected to attack with nuclear weapons. That the matter is both urgent and of vital importance is now becoming more generally recognised by the leaders of the veterinary profession and perhaps I may be pardoned for taking it as a good omen that one of my officers should have been elected as the first chairman of the Atomic Energy Sub-Committee of the British Veterinary Association. As far as the R.A.V.C. is concerned, I will, at this stage, content

myself with saying that we will be only too willing to co-operate with the officers of the Animal Health Division and other representatives of the veterinary profession in a combined effort, which must, I feel, tap all the resources at the disposal of the profession, if it is to be effective.

Officers for the R.A.V.C.

In conclusion, may I say a word about the R.A.V.C. officer position. Since the war, in common with the rest of the army, we have required to lean very heavily upon national service officers to complete our officer establishment. These young officers, cheerfully adapting themselves to a military atmosphere, have served the Corps well, but the time is approaching when we must rely upon candidates for short service and permanent regular commissions to meet our officer recruitments. Obviously, with a reduced establishment of 26 officers, the demand will not be onerous but, on the other hand, if the Corps is to maintain its long-standing tradition of efficient service, the *quality* of the "new entry" must be of the best. I have no doubt that, with the good-will of the profession behind us, the right men will come forward in the future, as in the past.

They will find that service in the Corps provides a good life for a young man who possesses something more than a strictly parochial outlook. Travel, sport, adequate remuneration, and good promotion prospects, not to mention that broadening of the outlook which springs from the diversity of duties he will be called upon to perform and the varied contacts he will make—all these advantages, and many more, are to be found by the young officer in the modern army.

The Colonial Veterinary Service

BY

R. S. MARSHALL

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IN THE VETERINARY RECORD of May 3rd this year, Dr. E. L. Taylor, in his paper "The Future of the Veterinary Profession" (presented at the 1958 Conference of the Association of Veterinary Students at Bristol), disposed of the overseas service under the heading "Present Prospects" in a few not-so-well chosen lines. He used the word "colonial," a term which is frowned upon generally to-day and which is rapidly disappearing from current use. "Overseas" is probably rather better, in that United Kingdom veterinarians, apart from those from abroad with U.K. qualifications, continue to be employed in territories that have gained independent status.

Taylor also suggested that this service might ultimately be taken over by FAO and WHO. In my view these organisations will continue to help overseas territories, on request, but they will never, and I mean never, replace even partly the existing local services.

In these days of accurate reporting in print, the rôle of prophet is not a very happy one. Even if one possesses an adequate appreciation of the present position, and the trends, it is perhaps unwise to look too far into the future, since forecasting requires more than an element of luck if it is going to be accurate and worth while.

Personally, I have little sympathy with the commentator on the acquisition of B.Sc. degrees by veterinarians over a quarter of a century ago. No doubt he did not imagine, for a moment, that his comments would be reproduced verbatim in THE RECORD 30 years later.

Taylor states that the overseas service is a rapidly diminishing line of employment. Diminishing is probably correct, but if he is thinking of the immediate future the word "rapidly" might well be deleted. Forgetting prophecy for the moment, what are the facts? There are more United Kingdom graduates employed in an official capacity overseas to-day (Dominions apart) than there were 10, 15, or 20 years ago. The figure, including the Federation of Rhodesia, is 339, which varies slightly from month to month. Of that number 274 are from the U.K., while the remainder, 64 are from South Africa, Australia, Canada, Europe, India, and the overseas territories themselves (with U.K. qualifications). A Table of these figures is shown below. Please note

TABLE I

	United Kingdom	*Others*
East Africa	116	5
Central Africa	52	8
Trust Territories	9	12
West Africa	59	10
Far East	6	2
Caribbean, British Guiana, and British Honduras	24	15
Others	8	13
	274	65

Total: 339

I have not included U.K. private practitioners who are earning their living overseas, a gradually increasing body of men, or those having what I might call sub-professional qualifications of varying quality.

Thus, while there have been losses in India, Sudan, Malaya, and to a lesser extent Ghana, these have been more than compensated by increases in the establishments elsewhere. I might add that if the response in the United Kingdom to overseas vacancy advertisements had been greater, these figures would have been even more striking.

At a conference of directors of agriculture of overseas territories held in Wye last month a statement on recruitment was made. In spite of full employment at home and candidates' doubts as to the security of a career overseas the recent rate of recruitment had been higher than in pre-war days. Permanent and pensionable posts were not usually offered unless there was a reasonable prospect of a career, *i.e.* 20 to 25 years, and about half of the present veterinary vacancies came into that category. As far as contract appointments were concerned, it had been suggested that these could quite easily be

made more attractive by the offer of longer periods of service, say, 8 to 12 years, and also more attractive financially. This was believed to be more realistic than the formation of a home-based pool of candidates, when those administering the pool were without control of the establishments in territories where officers were to be appointed.

We in the Colonial Office, who are responsible for recruitment, have been obliged from time to time during the recent phase of full employment in the U.K. to engage graduates from Europe, India, and the Dominions. During the past 3 years there have also been some vacancies which we were unable to fill. Several of these are still open, but very often when attempts to fill posts fail completely for a long time the staff indents are cancelled. During the period since I assumed duty at the Colonial Office, the vacancy position has remained fairly steady at a figure between 20 and 30 each month in spite of fairly regular recruitment. In this connexion, I have come to the conclusion that post-war graduates, with exceptions, have been over-fussy about conditions of service, housing, educational facilities for children, etc., that the pioneering spirit has largely disappeared, and that the job of work is of secondary importance.

Whether these vacancies will continue to remain open, and at the same level, for the next 5 or 10 years is difficult to say, but I think one can confidently predict that if there is any marked and sustained drop in the world prices of raw products, on which the economy of the overseas territories largely depend, then not only will vacancies disappear but establishments may be substantially reduced.

In this connexion I would like to refer to the Report on the Colonial Territories for 1957-8. If you have not ready access to that report a review appears in *Nature* of August 30th, page 566.

I quote: "The total overseas appointments through the Colonial Office was 1,296, compared with 1,286 in 1956, leaving 1,385 unfilled vacancies compared with 1,461 at the end of 1956. The recession in world commodity prices in 1957 had little effect on the territories, and taking the year as a whole the prices of most Colonial products, except copper and sisal, were as high or higher than 1956."

Use of Local Personnel

So much for present facts; but what about the more problematical future? One factor which appears to worry many people is the effect on employment overseas of U.K. veterinarians, of replacement by qualified local personnel. It is certainly the policy of overseas territories, with a few notable exceptions, to fill professional posts with local graduates when and where possible. In contradiction of what Taylor has said, this process, apart from one or two places, has been extremely slow, much slower than, for example, political development. Thus in Ghana there is not yet a single local graduate on the professional staff. No doubt the tempo of such recruitment will increase in the future, but judging by the number of local undergraduates in training, or those likely to become undergraduates, it will be some considerable time before a high percentage of local replacements is available.

This applies particularly to the territories where by far the greatest number of posts exist: Kenya, Tanganyika, Northern Nigeria, the Rhodesias, and Uganda. No graduate with the proposed new degree from Makerere will be available for 6 years, or from Ibadan in an unknown period of time. Some prominent veterinarians in this country consider that persons with sub-professional qualifications are adequate, for the time being, for the underdeveloped countries. I don't subscribe to such a view since it is unwise to apply the evolution of the profession in this country to the present-day needs of territories overseas. There are other solutions.

Development of Services

Having used the word "evolution" it might be helpful to describe briefly the development of the overseas veterinary service. In the early days, during the underdeveloped stage, the service was 100 per cent. that of the state. In course of time, particularly in the more favoured areas, livestock improved in quality and value under the stimulus of European settlement, but this was by no means general. Where it occurred, it led to the demand for individual rather than herd treatment, and following a transitional stage one has seen the emergence of the private practitioner. In time there will undoubtedly be seen the establishment of a suitable balance between the two types of service. In marginal areas the veterinary service will, for various reasons, remain largely state run. This evolutionary process has led to the creation of many new posts for veterinarians without reducing to any extent the establishments in the state services. As I visualise things this process will continue, so that in considering the overseas service the advent of the private practitioner should not be overlooked.

I do not propose to-night to deal with the position in territories individually, and give a forecast for each area, but I shall be glad to answer specific questions if I can. I do believe, however, that the prospects in the immediate future for the employment of veterinarians overseas are not as gloomy as many would have us believe. In particular, I am quite certain that the demand for veterinary research workers overseas will continue unabated for many years to come. In this field local personnel have, so far, shown very little interest and a chronic shortage of competent officers exists, and will continue to exist for some time.

I refuse to predict what the position will be like in 50 years' time, but as standards of living rise and the demand for livestock products increases, as it has been doing and will continue to do, livestock will be increasingly integrated into farming systems overseas, and marginal lands will, of necessity, be made more productive. This anticipated increase in livestock of all kinds will lead to a demand for more veterinarians, and Britain will, I hope, continue to supply competent professional men for the many tasks that lie ahead in tropical and sub-tropical areas.

A Survey of Diseases and Losses in Dairy Cattle in Wiltshire and Devonshire

BY

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AND

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SUMMARY.—The relation of disease to culling and wastage in Wiltshire and a part of Devon is analysed and estimates are obtained of depreciation in the market value of cows affected by the more common diseases. These estimates lead to a rough assessment of the relative economic importance of the diseases studied.

The principal causes of morbidity and their incidence are summarised. Some differences between counties and between the two years are pointed out and discussed.

Characteristics of the herds in the two areas and within the major land-use regions of each area are shown and estimates are obtained of the use of tuberculin testing, S19 vaccination, and milk recording in different types of herd and in different areas.

WITHERS (1955, 1957) has published some results of surveys of disease in dairy cattle in Surrey, Berkshire and Wiltshire. This work was followed up by more extensive surveys using random samples of dairy herds in Devon and Wiltshire in the years 1953 to 1955. Other counties have also been surveyed, but the results from these will be published separately. The present report concerns the data from two random samples in each county, the first being surveyed in the period October 1st, 1953 to September 30th, 1954, and the second from October 1st, 1954 to September 30th, 1955. The work was aided by a grant from Conditional (U.S. Economic) Aid funds in Wiltshire and by an Agricultural Research Council grant in Devonshire. It was under the general direction of the Director of the Central Veterinary Laboratory, Dr. A. W. Stableforth.

F. W. Withers and E. F. Peck were responsible for the field work and F. B. Leech for the sampling and analysis. The field data were obtained by asking the herd owner to keep some simple records which, together with supplementary information obtained at periodical visits to the farm, was transferred to edge-punched record cards for analysis. The record cards were those described by Withers (1956), with minor modifications.

FIG. 1.—Distribution of the two samples of farms surveyed in Wiltshire.

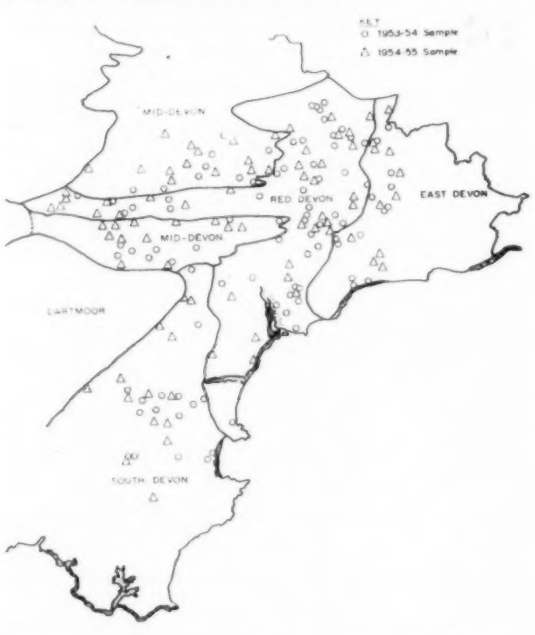

FIG. 2.—Distribution of the two samples of farms surveyed in Devonshire.

The Sample of Herds

Systematic samples were drawn from the lists of registered milk producers, the techniques used for drawing the 4 samples being detailed in the appendix. The tables in the appendix also show the degree to which the co-operation of farmers in the different strata was obtained. There appeared to be more difficulty in obtaining co-operation in Wiltshire than in Devon, but only the stratum of large non-designated herds in Wiltshire was seriously under-represented. This stratum contained a number of "flying" herds, all of whose owners felt that the amount of clerical work involved in keeping records of the constant coming and going of cows would be too great. Approximately 9 per cent. of the herds in this stratum, containing 1.5 per cent. of the cows of the county were "flying" herds in 1953 to 1954, the corresponding figures for 1954/55 being 17 per cent. of herds containing 4.1 per cent. of the cows in the county at the time of sampling.

The small herds were not sampled in either county, on the grounds that in relation to the amount of work involved in visiting them, very little information about disease would be obtained. Approximately 12 per cent. of the cow population in Wiltshire and 9 per cent. in Devon were contained in these small herds.

The areas sampled were the whole County of Wiltshire but only the portion of Devon indicated in Fig. 2, since a single field worker could not adequately survey the whole of Devon in the same year. The positions of the sample farms are shown in Figs. 1 and 2.

Results

The results are for the most part presented in the form of estimates—estimated incidence, estimated percentage, etc.—which are obtained by weighting the observations for each of the strata inversely by the sampling fractions detailed in the appendix. These are unbiased estimates for the population that has been sampled, *e.g.* for all Wiltshire dairy herds except those whose second-stage sampling fraction was zero. Where the term estimates is not used, results are the unweighted observations from the samples.

Incidences are expressed as percentages of the number of animals at risk; thus, for diseases associated with parturition, the animals at risk are only those that have calved; for accidents and injuries, all cows are assumed to be at risk.

TABLE I
NUMBERS OF COWS AND HERDS IN THE SAMPLES AND ESTIMATED TOTALS FOR THE AREAS SURVEYED

	Numbers in sample		Estimated totals		Average per cent. sampled	
	Cows	Herds	Cows	Herds	Cows	Herds
DEVON						
1953–4	1,810	94	41,430	2,418	4·37	3·89
1954–5	1,621	87	44,538	2,808	3·64	3·10
WILTS.						
1953–4	3,009	85	96,447	2,756	3·12	3·08
1954–5	2,800	75	94,530	2,590	2·96	2·90

A general picture of the sizes of the samples and of the populations of cows they represented is given in Table I. The numbers of cows are the averages of 4 records of the numbers given when the herds were visited at approximately quarterly intervals; they exclude heifers that had not yet calved for the first time. All 4 samples included 3 to 4 per cent. of both cows and herds in the areas surveyed.

The estimate of total cows for Wiltshire is large compared with the census figure for June, 1955 (Milk Marketing Board, 1956), because the cow population is generally at a minimum in June.

Characterisation of the Herds

1. *Breed*

The distribution of the breeds in the Devon samples followed the pattern shown in the detailed study of Morris (1952). The estimates in Table II show the distribution in 4 land-use regions defined by Stamp (1941). These are based on numbers of cows and include those in mixed herds. The proportions of herds containing more than one breed are shown at the bottom of this table. The South Devon breed was largely kept in unmixed herds in the South, whereas the Devon breed was commonly kept with cows of other breeds in herds in east and mid Devon.

The variation in the distribution of the breeds in

TABLE II
ESTIMATED PERCENTAGE COWS OF DIFFERENT BREEDS IN 4 LAND-USE REGIONS IN THE AREAS SURVEYED. UNWEIGHTED MEANS OF THE 2 SAMPLES

DEVON	Land-Use Region			
	East	Mid	Red	South
Shorthorn	26·8	20·0	18·0	4·0
Friesian	15·2	22·7	35·3	3·2
Ayrshire	3·5	8·6	7·6	10·0
Guernsey	5·0	11·0	6·0	2·2
South Devon	0·0	4·4	5·4	62·5
Devon	21·2	10·3	9·4	0·4
Other breeds	1·9	1·2	1·3	8·4
Crosses	26·4	21·8	17·0	9·3
Percentage mixed herds	83	73	65	33
Total herds in sample	24	45	82	30

WILTSHIRE	Cots-wold	Clay	Green-sand	Chalk	Grass-forest
Shorthorn	36·7	35·9	36·2	39·6	24·9
Friesian	15·0	30·6	26·4	31·3	26·1
Ayrshire	23·3	19·9	31·2	6·7	10·6
Guernsey	4·3	3·8	3·5	6·3	6·7
Jersey	0·0	1·0	0·2	2·9	10·3
Other breeds	0·0	0·6	0·0	0·0	0·2
Crosses	20·7	8·2	2·5	13·2	21·2
Percentage mixed herds	47	54	53	35	45
Total herds in sample	19	72	15	34	20

different parts of Wiltshire was relatively small and there was also much less variation in the proportions of mixed herds. The data in Table II show that the Shorthorn was the principal breed in all parts of Wiltshire, the Friesian being a close second in the two main dairying areas (Clay & Chalk).

2. *Designation*

Designated herds include those whose buildings conformed to certain standards and those registered in schemes for the reduction and elimination of tuberculosis. In the first year of the survey, designated herds contained a group ("accredited") not registered in the tuberculosis schemes. This designation was terminated at the end of the year, so that all designated herds in the second year contained tuberculin-tested cattle.

Designation indicates some degree of change either in the buildings or in the attitude of the owner towards tuberculosis. The proportions of designated herds, averaged over both years, are summarised in Table III, Devon breeds being excluded to facilitate comparison. In all sub-groups, the larger herds were much more frequently designated than the smaller herds and the single-breed herds more frequently than the mixed herds. This table also shows a striking difference between N.W. Wiltshire, which comprises the Cotswold and Clay areas of Table II and S.E. Wiltshire. The incidence of designation was lower in all 4 sub-groups and was particularly low among mixed herds, where it was only about half the incidence for S.E. Wiltshire. This table also shows that within the sub-groups, designation was generally more frequent in Devon than in Wiltshire. However, there were many more herds in Devon in the groups with a low incidence, so that the estimated incidence of designation, in the whole Devon area, was only slightly over half that for Wiltshire.

TABLE III
PERCENTAGE DESIGNATED HERDS AND NUMBERS OF HERDS IN DEVON AND 2 AREAS OF WILTSHIRE; TOTALS OVER THE 2 SAMPLES

Area	Herd size: ⩽29 cows No. of herds	⩽29 cows Percentage designated	30+ cows No. of herds	30+ cows Percentage designated	Unweighted mean percentage designated
MIXED HERDS					
N.W. Wiltshire	25	20	23	48	34
S.E. Wiltshire	15	47	14	79	63
Devon area	96	39	20	85	62
Unweighted mean		35		71	
SINGLE BREED HERDS					
N.W. Wiltshire	16	56	27	81	68
S.E. Wiltshire	14	64	26	85	74
Devon area	26	73	16	100	86
Unweighted mean		64		89	

TABLE IV
PERCENTAGE HERDS USING STRAIN 19 VACCINE

	Herd size ⩽29	30+
MIXED HERDS		
N.W. Wiltshire	25	71
S.E. Wiltshire	29	73
Devon area	26	44
No information about S19	2	12
SINGLE BREED HERDS		
N.W. Wiltshire	75	81
S.E. Wiltshire	58	76
Devon area	52	80
No information about S19	5	3

3. *Use of Strain 19 Vaccine*

The proportions of herds protected against contagious abortion by vaccination with strain 19 are shown in Table IV. Although these percentages are less reliable than those in Table III because of the numbers of herds for which no information was obtained, there is no doubt that vaccination was much more general in the larger herds and that it was more commonly used in single-breed herds than in mixed herds. There were no important differences between the areas.

4. *Milk Recording*

A similar relationship to herd size and a similar difference between mixed and single-breed herds are shown in Table V. The incidence of milk recording among the larger herds of the north-western area of Wiltshire was only a third of that for the rest of Wiltshire.

TABLE V
USE OF MILK RECORDING

Area	Herd size ⩽29 Number of herds	⩽29 Percentage milk recorded	30+ Number of herds	30+ Percentage milk recorded
MIXED HERDS				
N.W. Wiltshire	25	16	22	18
S.E. Wiltshire	15	20	13	54
Devon area	96	12	20	30
SINGLE BREED HERDS				
N.W. Wiltshire	16	44	27	67
S.E. Wiltshire	13	38	26	58
Devon area	26	65	16	88

5. *Herd Size*

The Wiltshire herds are much larger than those of Devon. Estimated average sizes for both designated and non-designated herds are given in Table VI, which shows that on the average the designated were

TABLE VI
ESTIMATED MEAN HERD SIZE OF EACH SAMPLE

	Designated	Non-designated
Devon area:		
1953-4	29·1	15·4
1954-5	30·0	14·6
Wiltshire:		
1953-4	49·0	27·5
1954-5	52·5	28·3

about twice the size of the non-designated herds.

6. *Distribution of Calvings*

The distributions by season and by age given in Tables VII and VIII show that autumn calvings were much more frequent in Wiltshire than in Devon (12 per cent. more for heifers and 8 per cent. more for old cows) and that old cows calved more frequently in spring than did heifers. There were 6 per cent. more calvings of old cows in Devon than Wiltshire, with a corresponding reduction in the proportions of calvings of young animals; the population of fertile cows was thus older in Devon than in Wiltshire.

TABLE VII
PERCENTAGES OF HEIFERS AND OF OLD COWS CALVING AT 3 SEASONS OF THE YEAR; MEANS OF 2 SAMPLES

Date calved	Devon area	Wiltshire
HEIFERS		
September—December	51·1	63·1
January—April	22·7	19·1
May—August	26·2	17·8
COWS 6TH LACTATION AND OVER		
September—December	32·2	40·4
January—April	42·1	39·7
May—August	25·7	19·9

TABLE VIII
DISTRIBUTION OF CALVINGS BY LACTATION NUMBER; MEANS OVER BOTH SAMPLES

	Lactation Number			
	1	2–3	4–5	6+
Devon area	18·4	36·9	24·0	20·7
Wiltshire	22·4	39·5	23·4	14·7

Rates of Culling

Culling is partly the removal of unwanted animals and is partly necessary to make room in the herd for heifers. Rates of culling may vary because of factors quite unconnected with disease. For example, if the herd size is being reduced or the herd being graded up to a pure breed the rate of culling will be high. Again, the rate of culling may be very high if a herd is in process of becoming attested, though none of the culls may show evidence of tuberculosis other than a reaction to the tuberculin test. Differences in culling rates must therefore be interpreted with considerable caution.

The reasons given for culling have been grouped in Table IX under the headings "diseased," "uneconomic" and "surplus." Tuberculin reactions are shown separately to the remainder of the diseased group because for the most part they will have shown no symptoms of disease, whereas in the remainder the symptoms of disease make the animal uneconomic and necessitate its removal. The rate of culling of animals with symptoms of disease was always slightly higher in Devon than in Wiltshire. Table X shows that the differences in the age distribution of these culls do not correspond to the differences in the age distribution of the population shown in Table VIII. There were proportionately more culls of first calvers from Devon, where the population contained a smaller proportion of first calvers than in Wiltshire. The diseased culls are also shown in this table as percentages of the total culls in each age group; this arrangement of the data shows that the differences between the Devon and Wiltshire data were confined to the younger age groups (first to third calvers). Since the difference occurs in all 3 disease categories—death on the farm, infertility and disease, and accident, the only common factor being disease associated with parturition—the culls in the death and disease and accident groups are sub-classified on this basis in Table XI. This reveals that almost the whole of the 10 per cent. difference between Devon and Wiltshire first lactation culls, which appears in Table X, was concentrated in the genital diseases, 19 per cent. of the 121 Devon culls being on account of genital disease (which includes undiagnosed infertility) compared with 10.6 per cent. of the 197 Wiltshire culls. The lower rate associated with "other diseases" in the older cows of the Devon area should also be noted, but this category contains a wide variety of affections and not enough of any one type to provide useful information.

TABLE IX
ESTIMATED AVERAGE RATES OF CULLING (PER CENT.) CLASSIFIED BY REASON GIVEN

	Devon		Wiltshire	
	1953–4	1954–5	1953–4	1954–5
DISEASED				
Died on farm	1·05	1·19	0·91	0·81
Disease & accident	4·65	7·34	3·57	4·34
Infertile	2·69	1·90	2·51	1·68
Total	8·39	10·43	6·99	6·83
Reactor to tuberculin	2·81	4·83	6·99	1·40
UNECONOMIC (*not diseased*)				
Aged	2·36	2·11	1·61	1·27
Poor milk yield	4·43	4·85	5·19	5·21
Total	6·79	6·96	6·80	6·48
Surplus	6·22	3·57	2·85	4 01
Total culling	24·21	25·79	23·63	18·72

TABLE X
CULLING ON ACCOUNT OF DISEASE: AGE DISTRIBUTION AND RATES OF CULLING WITHIN AGE GROUPS

Age distribution of culls (per cent.)

	Lactation number				
	1	2–3	4–5	6+	Total
Devon	14	35	27	24	100
Wiltshire	12	39	28	21	100

As per cent. of culls in the same age group.

Devon	35	39	40	35
Wiltshire	25	35	41	34

Morbidity

Only a general review of morbidity will be given in the present paper, detailed studies of individual diseases being published separately. Incidences are

important advantage we have over the clinics—full and accurate records. Half the consultation time might well be spent in recording the history of the patient, and in doing so getting to know the client. The personal interest so generated will ensure that the client remains with one throughout the lifetime of the animal. The clinics cannot keep, and have available on all future occasions, a complete record ready to hand for each future consultation. It is this which establishes the ideal practitioner-client relationship of mutual trust—the old G.P./family regard, which is perhaps rather lost to-day in the national health service.

Clients and Clinics

Owners attending charitable clinics, even where there is no attempt at proper almoning, can roughly be divided into 3 categories :—

1. The genuinely poor owners. Anyone who has conducted clinics in the poorer areas of London, as I have, knows what a tremendous burden of uneconomic work such clinics remove from the private practitioner. We could not cope with all these cases in our private practices, however great might be our desire to help.

2. The owner who, probably, can perfectly well afford the proper economic cost of the treatment of his animal, but wants something for nothing. An ever-increasing number of such people have grown up in the welfare state, and have come to regard as a matter of right the care and attention they now receive from the cradle to the grave. Do we want them as clients? They are the type who fluctuate, in the absence of free treatment, from one practitioner to another as they run up their accounts and are refused more credit. Bad debts!

3. This class is the one which will gravitate from the charitable clinic to an efficiently run private practice. Such people soon tire of having to wait in the often crowded waiting rooms of the charitable clinics and take the view that they would rather receive the personal attention they feel to be their due. They will tell one that when an animal is presented at a welfare clinic the official in charge may be too busy to go fully into the history, or to maintain a complete record of the case from visit to visit. It is such considerations—together, often enough, with advice from friends—which lead them to give up the supposed benefits of getting treatment for nothing in favour of paying a veterinary surgeon in private practice.

So why the anxiety about the future developments of charitable clinics? Admittedly there are serious grounds for complaint in that the cases treated by the clinics during the day demand the attention of the local veterinary surgeon during the hours that the clinic is closed. But this, I feel, is outweighed by the "siphoning off" of the genuinely poor owners whom, with the best will in the world, we could hardly serve on a regular basis without fee.

Finally, if I were questioned by a young graduate on his prospects in small-animal practice my advice to him would be this :—

"If you are fond of dogs and not afraid to show it, and can put up with people; if you are prepared to work hard and keep ahead of the times in your diagnosis, treatment and surgical techniques, you will most certainly succeed. Let your loadstone be—to paraphrase a well-known quotation—'to cure the patient sometimes, to help often, and to understand and comfort the owner always'."

Reference

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The Royal Army Veterinary Corps

BY

BRIGADIER A. G. RALSTON

BEFORE embarking on this short paper, I would like to express my thanks to the President and committee of your society for their courtesy in affording me the opportunity of addressing you on a subject which, contrary to the usual custom, has no scientific or clinical significance. Nevertheless, I hope my somewhat tentative forecasts may be of some interest to members of the profession generally, as well as to past and present members of the Royal Army Veterinary Corps who may feel more directly concerned.

In this era of great advances in mechanisation, automation, electronics, ballistic missiles, man-made satellites and, above all, of nuclear fission, there must be many who wonder if human beings, much less animals, will have any noticeable rôle in the armies of the future, the whole affair being left to mechanical robots launching their thunderbolts at each other by the application of pressure on the appropriate control button. We have not, however, quite achieved such an advanced state of "civilisation" and in the meantime we are assured by the highest military authorities that the human factor will still be the one upon which the outcome of battles will depend. That being so, is it too fantastic to predict that, given certain circumstances, animals, too, may have a part to play?

To illustrate my point, may I make a brief reference to the comparatively recent past? As you may recall, in the years immediately preceding the last war great strides had been made towards the full-scale mechanisation of the army. It became accepted (a little late in the day it is true) that the cavalry troop-horse was no longer destined to play any part in modern warfare. On the other hand it was rightly held that, in India, if nowhere else, the pack mule could never be adequately replaced by any mechanical vehicle in providing the transport required by a field force operating in mountainous country.

The outbreak of war in 1939 resulted in a moderate expansion of the R.A.V.C. In the Middle East, veterinary cover was provided for the cavalry division which had been sent out to Palestine. As far as I am aware, this example of the mis-employment of horses in modern warfare was the first and last to occur in the 1939-45 era, reflecting, as it did, little credit on the evolution of military thought during the years between the two wars. Of greater value

to the war effort was the organisation by the R.A.V.C. of livestock depots in Palestine and Syria. Veterinary officers supervised the purchase of cattle and sheep to stock the depots, their conditioning in the depots, and subsequent issue to the troops. Between 1942 and 1946 these depots dealt with 39,500 head of cattle, 307,000 sheep, and 69,690 goats. Not only were the troops enabled to enjoy a ration of fresh meat of good quality, but the saving in shipping space proved to be of the greatest value at a time when that commodity was in extremely short supply. India contrived to outrival the Middle East in numbers of slaughter animals dealt with, 770,700 being examined on the hoof and 676,800 issued for slaughter, all under veterinary supervision.

In the meantime, pack transport was employed in Eritrea and Greece, but it was not until the invasion of Burma by the Japanese in 1942 that the pack animal really came into its own, and continued to give essential service until the end of the campaign. Later, in the course of the Italian campaign, when, in 1943, the fighting moved into mountainous terrain, mules were once more called into service on a considerable scale and were retained with the army until the conclusion of operations in 1945. Altogether, in the course of the Burma and Italian campaigns some 24,500 horses, 65,000 mules, 3,600 camels, and 8,800 transport bullocks, were employed. Obviously, mechanisation had not provided the complete answer to the army's transport problem!

Turning to the R.A.V.C. officer structure at the outbreak of war; there were then serving with the Corps 85 British and 17 Indian officers, a total of 102 of whom 76 were in India. By the end of the war, 519 officers had served with the R.A.V.C. and Remount Service. British other ranks increased from 105 at the outset to 3,839 by April, 1945. I have inflicted these statistics upon you in order to illustrate how the R.A.V.C. and I.A.V.C. were called upon to meet a completely unexpected demand upon their comparatively slender resources, a demand which could only be met by expansion on a very large scale. It does not need emphasising that expansion could not have been accomplished swiftly, smoothly, and efficiently, had there not been in existence a Corps prepared to organise and train the "new entry"; raise the new R.A.V.C. units required; and provide the experienced officers and N.C.O.s necessary to administer them.

So much for the past—in what direction will the R.A.V.C.'s responsibilities lie in the future?

Future of the R.A.V.C.

As you may have gathered from my previous remarks, it is my view that our first and most important aim must be to provide the peace-time organisation upon which expansion can be based in the event of war. We do not antipicate that the numbers required would approach those of 1939-45; but, should the course of hostilities involve fighting in mountainous country, jungle, or swamp, pack transport would certainly be required. The R.A.V.C. must, in that event, be prepared to provide the animals, train the personnel, and raise the R.A.V.C. units needed to provide the appropriate veterinary and remount cover for the field force. In addition to forming a cadre for expansion on mobilisation and apart from certain changes in connexion with guard dog duties, which I will refer to later, the Corps will, in general, continue to function along the lines laid down immediately after the last war. The R.A.V.C. Training Centre & Depot will remain at Melton Mowbray as the headquarters of the Corps. There the remount wing provides for the reception, quarantine, training, and veterinary treatment of remounts for issue to the Household Cavalry, King's Troop R.H.A., R.A.S.C., R.M.P. etc. It is planned to improve the existing equine and canine hospital accommodation and equipment and bring them more into line with modern practice. The School of Farriery will continue to train most of the army's farriers while the Long Course for equitation instructors of the mounted units will be held at the Depot each winter, as in the past.

It is the intention that the R.A.V.C. School and Laboratory will remain in being to provide the Corps and the army with a laboratory service, X-ray facilities, and instruction in animal management. This it has done for the past 78 years. It was, incidentally, at this School that Davenport, Pryer, and Oxspring carried out their pioneer researches into equine radiography. This traditional interest in the employment of X-ray as a diagnostic aid has been diligently developed and extended to the canine field.

In the course of the next 9 months the Corps will hand over the army guard dog units to the R.M.P. Three units are involved. They are located at Singapore, Hong Kong, and Cyprus, respectively. The R.A.V.C. will, however, continue to be responsible for the provision of all army dogs and for their training and that of their handlers. Responsibility for special types of dogs required for employment on operations and internal security duties, such as tracking dogs, patrol dogs, mine-detecting, and arms-recovery dogs, will remain with the R.A.V.C. as will, of course, the provision of the veterinary staff required by the guard dog units, each of which will include in their establishment a veterinary and training section R.A.V.C., commanded by a veterinary officer. The war dog training unit in Malaya, where dogs and handlers are trained for jungle operations, will continue as a R.A.V.C. unit, as will the dog-training units in Germany and England, the latter being included in the establishment of the Depot at Melton Mowbray.

In looking to the future, it would be quite impossible to ignore the necessity for evolving a comprehensive plan of action in the event of this country being subjected to attack with nuclear weapons. That the matter is both urgent and of vital importance is now becoming more generally recognised by the leaders of the veterinary profession and perhaps I may be pardoned for taking it as a good omen that one of my officers should have been elected as the first chairman of the Atomic Energy Sub-Committee of the British Veterinary Association. As far as the R.A.V.C. is concerned, I will, at this stage, content

myself with saying that we will be only too willing to co-operate with the officers of the Animal Health Division and other representatives of the veterinary profession in a combined effort, which must, I feel, tap all the resources at the disposal of the profession, if it is to be effective.

Officers for the R.A.V.C.

In conclusion, may I say a word about the R.A.V.C. officer position. Since the war, in common with the rest of the army, we have required to lean very heavily upon national service officers to complete our officer establishment. These young officers, cheerfully adapting themselves to a military atmosphere, have served the Corps well, but the time is approaching when we must rely upon candidates for short service and permanent regular commissions to meet our officer recruitments. Obviously, with a reduced establishment of 26 officers, the demand will not be onerous but, on the other hand, if the Corps is to maintain its long-standing tradition of efficient service, the *quality* of the "new entry" must be of the best. I have no doubt that, with the good-will of the profession behind us, the right men will come forward in the future, as in the past.

They will find that service in the Corps provides a good life for a young man who possesses something more than a strictly parochial outlook. Travel, sport, adequate remuneration, and good promotion prospects, not to mention that broadening of the outlook which springs from the diversity of duties he will be called upon to perform and the varied contacts he will make—all these advantages, and many more, are to be found by the young officer in the modern army.

The Colonial Veterinary Service

BY

R. S. MARSHALL

Colonial Office, London

IN THE VETERINARY RECORD of May 3rd this year, Dr. E. L. Taylor, in his paper "The Future of the Veterinary Profession" (presented at the 1958 Conference of the Association of Veterinary Students at Bristol), disposed of the overseas service under the heading "Present Prospects" in a few not-so-well chosen lines. He used the word "colonial," a term which is frowned upon generally to-day and which is rapidly disappearing from current use. "Overseas" is probably rather better, in that United Kingdom veterinarians, apart from those from abroad with U.K. qualifications, continue to be employed in territories that have gained independent status.

Taylor also suggested that this service might ultimately be taken over by FAO and WHO. In my view these organisations will continue to help overseas territories, on request, but they will never, and I mean never, replace even partly the existing local services.

In these days of accurate reporting in print, the rôle of prophet is not a very happy one. Even if one possesses an adequate appreciation of the present position, and the trends, it is perhaps unwise to look too far into the future, since forecasting requires more than an element of luck if it is going to be accurate and worth while.

Personally, I have little sympathy with the commentator on the acquisition of B.Sc. degrees by veterinarians over a quarter of a century ago. No doubt he did not imagine, for a moment, that his comments would be reproduced verbatim in THE RECORD 30 years later.

Taylor states that the overseas service is a rapidly diminishing line of employment. Diminishing is probably correct, but if he is thinking of the immediate future the word "rapidly" might well be deleted. Forgetting prophecy for the moment, what are the facts? There are more United Kingdom graduates employed in an official capacity overseas to-day (Dominions apart) than there were 10, 15, or 20 years ago. The figure, including the Federation of Rhodesia, is 339, which varies slightly from month to month. Of that number 274 are from the U.K., while the remainder, 64 are from South Africa, Australia, Canada, Europe, India, and the overseas territories themselves (with U.K. qualifications). A Table of these figures is shown below. Please note

TABLE I

	United Kingdom	*Others*
East Africa	116	5
Central Africa	52	8
Trust Territories	9	12
West Africa	59	10
Far East	6	2
Caribbean, British Guiana, and British Honduras	24	15
Others	8	13
	274	65

Total: 339

I have not included U.K. private practitioners who are earning their living overseas, a gradually increasing body of men, or those having what I might call sub-professional qualifications of varying quality.

Thus, while there have been losses in India, Sudan, Malaya, and to a lesser extent Ghana, these have been more than compensated by increases in the establishments elsewhere. I might add that if the response in the United Kingdom to overseas vacancy advertisements had been greater, these figures would have been even more striking.

At a conference of directors of agriculture of overseas territories held in Wye last month a statement on recruitment was made. In spite of full employment at home and candidates' doubts as to the security of a career overseas the recent rate of recruitment had been higher than in pre-war days. Permanent and pensionable posts were not usually offered unless there was a reasonable prospect of a career, *i.e.* 20 to 25 years, and about half of the present veterinary vacancies came into that category. As far as contract appointments were concerned, it had been suggested that these could quite easily be

made more attractive by the offer of longer periods of service, say, 8 to 12 years, and also more attractive financially. This was believed to be more realistic than the formation of a home-based pool of candidates, when those administering the pool were without control of the establishments in territories where officers were to be appointed.

We in the Colonial Office, who are responsible for recruitment, have been obliged from time to time during the recent phase of full employment in the U.K. to engage graduates from Europe, India, and the Dominions. During the past 3 years there have also been some vacancies which we were unable to fill. Several of these are still open, but very often when attempts to fill posts fail completely for a long time the staff indents are cancelled. During the period since I assumed duty at the Colonial Office, the vacancy position has remained fairly steady at a figure between 20 and 30 each month in spite of fairly regular recruitment. In this connexion, I have come to the conclusion that post-war graduates, with exceptions, have been over-fussy about conditions of service, housing, educational facilities for children, etc., that the pioneering spirit has largely disappeared, and that the job of work is of secondary importance.

Whether these vacancies will continue to remain open, and at the same level, for the next 5 or 10 years is difficult to say, but I think one can confidently predict that if there is any marked and sustained drop in the world prices of raw products, on which the economy of the overseas territories largely depend, then not only will vacancies disappear but establishments may be substantially reduced.

In this connexion I would like to refer to the Report on the Colonial Territories for 1957-8. If you have not ready access to that report a review appears in *Nature* of August 30th, page 566.

I quote: "The total overseas appointments through the Colonial Office was 1,296, compared with 1,286 in 1956, leaving 1,385 unfilled vacancies compared with 1,461 at the end of 1956. The recession in world commodity prices in 1957 had little effect on the territories, and taking the year as a whole the prices of most Colonial products, except copper and sisal, were as high or higher than 1956."

Use of Local Personnel

So much for present facts; but what about the more problematical future? One factor which appears to worry many people is the effect on employment overseas of U.K. veterinarians, of replacement by qualified local personnel. It is certainly the policy of overseas territories, with a few notable exceptions, to fill professional posts with local graduates when and where possible. In contradiction of what Taylor has said, this process, apart from one or two places, has been extremely slow, much slower than, for example, political development. Thus in Ghana there is not yet a single local graduate on the professional staff. No doubt the tempo of such recruitment will increase in the future, but judging by the number of local undergraduates in training, or those likely to become undergraduates, it will be some considerable time before a high percentage of local replacements is available.

This applies particularly to the territories where by far the greatest number of posts exist: Kenya, Tanganyika, Northern Nigeria, the Rhodesias, and Uganda. No graduate with the proposed new degree from Makerere will be available for 6 years, or from Ibadan in an unknown period of time. Some prominent veterinarians in this country consider that persons with sub-professional qualifications are adequate, for the time being, for the underdeveloped countries. I don't subscribe to such a view since it is unwise to apply the evolution of the profession in this country to the present-day needs of territories overseas. There are other solutions.

Development of Services

Having used the word "evolution" it might be helpful to describe briefly the development of the overseas veterinary service. In the early days, during the underdeveloped stage, the service was 100 per cent. that of the state. In course of time, particularly in the more favoured areas, livestock improved in quality and value under the stimulus of European settlement, but this was by no means general. Where it occurred, it led to the demand for individual rather than herd treatment, and following a transitional stage one has seen the emergence of the private practitioner. In time there will undoubtedly be seen the establishment of a suitable balance between the two types of service. In marginal areas the veterinary service will, for various reasons, remain largely state run. This evolutionary process has led to the creation of many new posts for veterinarians without reducing to any extent the establishments in the state services. As I visualise things this process will continue, so that in considering the overseas service the advent of the private practitioner should not be overlooked.

I do not propose to-night to deal with the position in territories individually, and give a forecast for each area, but I shall be glad to answer specific questions if I can. I do believe, however, that the prospects in the immediate future for the employment of veterinarians overseas are not as gloomy as many would have us believe. In particular, I am quite certain that the demand for veterinary research workers overseas will continue unabated for many years to come. In this field local personnel have, so far, shown very little interest and a chronic shortage of competent officers exists, and will continue to exist for some time.

I refuse to predict what the position will be like in 50 years' time, but as standards of living rise and the demand for livestock products increases, as it has been doing and will continue to do, livestock will be increasingly integrated into farming systems overseas, and marginal lands will, of necessity, be made more productive. This anticipated increase in livestock of all kinds will lead to a demand for more veterinarians, and Britain will, I hope, continue to supply competent professional men for the many tasks that lie ahead in tropical and sub-tropical areas.

A Survey of Diseases and Losses in Dairy Cattle in Wiltshire and Devonshire

BY

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AND

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SUMMARY.—The relation of disease to culling and wastage in Wiltshire and a part of Devon is analysed and estimates are obtained of depreciation in the market value of cows affected by the more common diseases. These estimates lead to a rough assessment of the relative economic importance of the diseases studied.

The principal causes of morbidity and their incidence are summarised. Some differences between counties and between the two years are pointed out and discussed.

Characteristics of the herds in the two areas and within the major land-use regions of each area are shown and estimates are obtained of the use of tuberculin testing, S19 vaccination, and milk recording in different types of herd and in different areas.

WITHERS (1955, 1957) has published some results of surveys of disease in dairy cattle in Surrey, Berkshire and Wiltshire. This work was followed up by more extensive surveys using random samples of dairy herds in Devon and Wiltshire in the years 1953 to 1955. Other counties have also been surveyed, but the results from these will be published separately. The present report concerns the data from two random samples in each county, the first being surveyed in the period October 1st, 1953 to September 30th, 1954, and the second from October 1st, 1954 to September 30th, 1955. The work was aided by a grant from Conditional (U.S. Economic) Aid funds in Wiltshire and by an Agricultural Research Council grant in Devonshire. It was under the general direction of the Director of the Central Veterinary Laboratory, Dr. A. W. Stableforth.

F. W. Withers and E. F. Peck were responsible for the field work and F. B. Leech for the sampling and analysis. The field data were obtained by asking the herd owner to keep some simple records which, together with supplementary information obtained at periodical visits to the farm, was transferred to edge-punched record cards for analysis. The record cards were those described by Withers (1956), with minor modifications.

FIG. 1.—Distribution of the two samples of farms surveyed in Wiltshire.

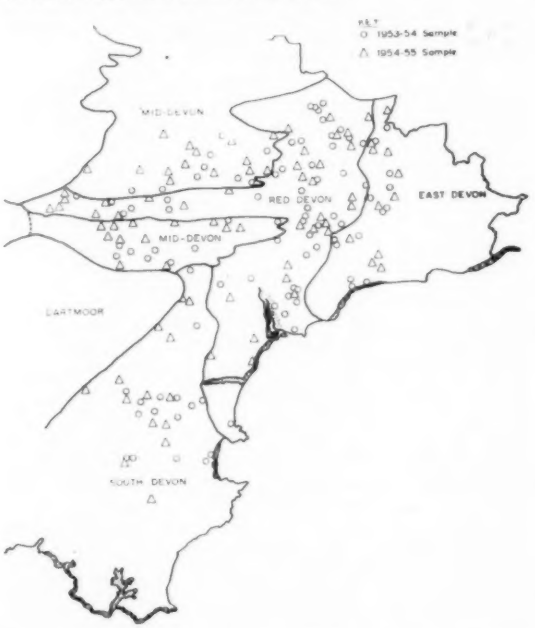

FIG. 2.—Distribution of the two samples of farms surveyed in Devonshire.

The Sample of Herds

Systematic samples were drawn from the lists of registered milk producers, the techniques used for drawing the 4 samples being detailed in the appendix. The tables in the appendix also show the degree to which the co-operation of farmers in the different strata was obtained. There appeared to be more difficulty in obtaining co-operation in Wiltshire than in Devon, but only the stratum of large non-designated herds in Wiltshire was seriously under-represented. This stratum contained a number of "flying" herds, all of whose owners felt that the amount of clerical work involved in keeping records of the constant coming and going of cows would be too great. Approximately 9 per cent. of the herds in this stratum, containing 1.5 per cent. of the cows of the county were "flying" herds in 1953 to 1954, the corresponding figures for 1954/55 being 17 per cent. of herds containing 4.1 per cent. of the cows in the county at the time of sampling.

The small herds were not sampled in either county, on the grounds that in relation to the amount of work involved in visiting them, very little information about disease would be obtained. Approximately 12 per cent. of the cow population in Wiltshire and 9 per cent. in Devon were contained in these small herds.

The areas sampled were the whole County of Wiltshire but only the portion of Devon indicated in Fig. 2, since a single field worker could not adequately survey the whole of Devon in the same year. The positions of the sample farms are shown in Figs. 1 and 2.

Results

The results are for the most part presented in the form of estimates—estimated incidence, estimated percentage, etc.—which are obtained by weighting the observations for each of the strata inversely by the sampling fractions detailed in the appendix. These are unbiased estimates for the population that has been sampled, *e.g.* for all Wiltshire dairy herds except those whose second-stage sampling fraction was zero. Where the term estimates is not used, results are the unweighted observations from the samples.

Incidences are expressed as percentages of the number of animals at risk; thus, for diseases associated with parturition, the animals at risk are only those that have calved; for accidents and injuries, all cows are assumed to be at risk.

TABLE I
NUMBERS OF COWS AND HERDS IN THE SAMPLES AND ESTIMATED TOTALS FOR THE AREAS SURVEYED

	Numbers in sample		Estimated totals		Average per cent. sampled	
	Cows	Herds	Cows	Herds	Cows	Herds
DEVON						
1953–4	1,810	94	41,430	2,418	4·37	3·89
1954–5	1,621	87	44,538	2,808	3·64	3·10
WILTS.						
1953–4	3,009	85	96,447	2,756	3·12	3·08
1954–5	2,800	75	94,530	2,590	2·96	2·90

A general picture of the sizes of the samples and of the populations of cows they represented is given in Table I. The numbers of cows are the averages of 4 records of the numbers given when the herds were visited at approximately quarterly intervals; they exclude heifers that had not yet calved for the first time. All 4 samples included 3 to 4 per cent. of both cows and herds in the areas surveyed.

The estimate of total cows for Wiltshire is large compared with the census figure for June, 1955 (Milk Marketing Board, 1956), because the cow population is generally at a minimum in June.

Characterisation of the Herds

1. *Breed*

The distribution of the breeds in the Devon samples followed the pattern shown in the detailed study of Morris (1952). The estimates in Table II show the distribution in 4 land-use regions defined by Stamp (1941). These are based on numbers of cows and include those in mixed herds. The proportions of herds containing more than one breed are shown at the bottom of this table. The South Devon breed was largely kept in unmixed herds in the South, whereas the Devon breed was commonly kept with cows of other breeds in herds in east and mid Devon.

The variation in the distribution of the breeds in

TABLE II
ESTIMATED PERCENTAGE COWS OF DIFFERENT BREEDS IN 4 LAND-USE REGIONS IN THE AREAS SURVEYED. UNWEIGHTED MEANS OF THE 2 SAMPLES

DEVON	Land-Use Region			
	East	Mid	Red	South
Shorthorn	26·8	20·0	18·0	4·0
Friesian	15·2	22·7	35·3	3·2
Ayrshire	3·5	8·6	7·6	10·0
Guernsey	5·0	11·0	6·0	2·2
South Devon	0·0	4·4	5·4	62·5
Devon	21·2	10·3	9·4	0·4
Other breeds	1·9	1·2	1·3	8·4
Crosses	26·4	21·8	17·0	9·3
Percentage mixed herds	83	73	65	33
Total herds in sample	24	45	82	30

WILTSHIRE	Cotswold	Clay	Greensand	Chalk	Grassforest
Shorthorn	36·7	35·9	36·2	39·6	24·9
Friesian	15·0	30·6	26·4	31·3	26·1
Ayrshire	23·3	19·9	31·2	6·7	10·6
Guernsey	4·3	3·8	3·5	6·3	6·7
Jersey	0·0	1·0	0·2	2·9	10·3
Other breeds	0·0	0·6	0·0	0·0	0·2
Crosses	20·7	8·2	2·5	13·2	21·2
Percentage mixed herds	47	54	53	35	45
Total herds in sample	19	72	15	34	20

different parts of Wiltshire was relatively small and there was also much less variation in the proportions of mixed herds. The data in Table II show that the Shorthorn was the principal breed in all parts of Wiltshire, the Friesian being a close second in the two main dairying areas (Clay & Chalk).

2. *Designation*

Designated herds include those whose buildings conformed to certain standards and those registered in schemes for the reduction and elimination of tuberculosis. In the first year of the survey, designated herds contained a group ("accredited") not registered in the tuberculosis schemes. This designation was terminated at the end of the year, so that all designated herds in the second year contained tuberculin-tested cattle.

Designation indicates some degree of change either in the buildings or in the attitude of the owner towards tuberculosis. The proportions of designated herds, averaged over both years, are summarised in Table III, Devon breeds being excluded to facilitate comparison. In all sub-groups, the larger herds were much more frequently designated than the smaller herds and the single-breed herds more frequently than the mixed herds. This table also shows a striking difference between N.W. Wiltshire, which comprises the Cotswold and Clay areas of Table II and S.E. Wiltshire. The incidence of designation was lower in all 4 sub-groups and was particularly low among mixed herds, where it was only about half the incidence for S.E. Wiltshire. This table also shows that within the sub-groups, designation was generally more frequent in Devon than in Wiltshire. However, there were many more herds in Devon in the groups with a low incidence, so that the estimated incidence of designation, in the whole Devon area, was only slightly over half that for Wiltshire.

TABLE III
PERCENTAGE DESIGNATED HERDS AND NUMBERS OF HERDS IN DEVON AND 2 AREAS OF WILTSHIRE; TOTALS OVER THE 2 SAMPLES

Area	Herd size				Unweighted mean percentage designated
	⩽29 cows		30+ cows		
	No. of herds	Percentage designated	No. of herds	Percentage designated	
MIXED HERDS					
N.W. Wiltshire	25	20	23	48	34
S.E. Wiltshire	15	47	14	79	63
Devon area	96	39	20	85	62
Unweighted mean		35		71	
SINGLE BREED HERDS					
N.W. Wiltshire	16	56	27	81	68
S.E. Wiltshire	14	64	26	85	74
Devon area	26	73	16	100	86
Unweighted mean		64		89	

3. *Use of Strain 19 Vaccine*

The proportions of herds protected against contagious abortion by vaccination with strain 19 are shown in Table IV. Although these percentages are less reliable than those in Table III because of the numbers of herds for which no information was obtained, there is no doubt that vaccination was much more general in the larger herds and that it was more commonly used in single-breed herds than in mixed herds. There were no important differences between the areas.

TABLE IV
PERCENTAGE HERDS USING STRAIN 19 VACCINE

	Herd size	
	⩽29	30+
MIXED HERDS		
N.W. Wiltshire	25	71
S.E. Wiltshire	29	73
Devon area	26	44
No information about S19	2	12
SINGLE BREED HERDS		
N.W. Wiltshire	75	81
S.E. Wiltshire	58	76
Devon area	52	80
No information about S19	5	3

4. *Milk Recording*

A similar relationship to herd size and a similar difference between mixed and single-breed herds are shown in Table V. The incidence of milk recording among the larger herds of the north-western area of Wiltshire was only a third of that for the rest of Wiltshire.

TABLE V
USE OF MILK RECORDING

Area	Herd size			
	⩽29		30+	
	Number of herds	Percentage milk recorded	Number of herds	Percentage milk recorded
MIXED HERDS				
N.W. Wiltshire	25	16	22	18
S.E. Wiltshire	15	20	13	54
Devon area	96	12	20	30
SINGLE BREED HERDS				
N.W. Wiltshire	16	44	27	67
S.E. Wiltshire	13	38	26	58
Devon area	26	65	16	88

5. *Herd Size*

The Wiltshire herds are much larger than those of Devon. Estimated average sizes for both designated and non-designated herds are given in Table VI, which shows that on the average the designated were

TABLE VI
ESTIMATED MEAN HERD SIZE OF EACH SAMPLE

	Designated	Non-designated
Devon area:		
1953-4	29·1	15·4
1954-5	30·0	14·6
Wiltshire:		
1953-4	49·0	27·5
1954-5	52·5	28·3

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about twice the size of the non-designated herds.

6. *Distribution of Calvings*

The distributions by season and by age given in Tables VII and VIII show that autumn calvings were much more frequent in Wiltshire than in Devon (12 per cent. more for heifers and 8 per cent. more for old cows) and that old cows calved more frequently in spring than did heifers. There were 6 per cent. more calvings of old cows in Devon than Wiltshire, with a corresponding reduction in the proportions of calvings of young animals; the population of fertile cows was thus older in Devon than in Wiltshire.

TABLE VII
PERCENTAGES OF HEIFERS AND OF OLD COWS CALVING AT 3 SEASONS OF THE YEAR; MEANS OF 2 SAMPLES

Date calved	Devon area	Wiltshire
HEIFERS		
September—December	51·1	63·1
January—April	22·7	19·1
May—August	26·2	17·8
COWS 6TH LACTATION AND OVER		
September—December	32·2	40·4
January—April	42·1	39·7
May—August	25·7	19·9

TABLE VIII
DISTRIBUTION OF CALVINGS BY LACTATION NUMBER; MEANS OVER BOTH SAMPLES

	Lactation Number			
	1	2–3	4–5	6+
Devon area	18·4	36·9	24·0	20·7
Wiltshire	22·4	39·5	23·4	14·7

Rates of Culling

Culling is partly the removal of unwanted animals and is partly necessary to make room in the herd for heifers. Rates of culling may vary because of factors quite unconnected with disease. For example, if the herd size is being reduced or the herd being graded up to a pure breed the rate of culling will be high. Again, the rate of culling may be very high if a herd is in process of becoming attested, though none of the culls may show evidence of tuberculosis other than a reaction to the tuberculin test. Differences in culling rates must therefore be interpreted with considerable caution.

The reasons given for culling have been grouped in Table IX under the headings "diseased," "uneconomic" and "surplus." Tuberculin reactions are shown separately to the remainder of the diseased group because for the most part they will have shown no symptoms of disease, whereas in the remainder the symptoms of disease make the animal uneconomic and necessitate its removal. The rate of culling of animals with symptoms of disease was always slightly higher in Devon than in Wiltshire. Table X shows that the differences in the age distribution of these culls do not correspond to the differences in the age distribution of the population shown in Table VIII. There were proportionately more culls of first calvers from Devon, where the population contained a smaller proportion of first calvers than in Wiltshire. The diseased culls are also shown in this table as percentages of the total culls in each age group; this arrangement of the data shows that the differences between the Devon and Wiltshire data were confined to the younger age groups (first to third calvers). Since the difference occurs in all 3 disease categories—death on the farm, infertility and disease, and accident, the only common factor being disease associated with parturition—the culls in the death and disease and accident groups are sub-classified on this basis in Table XI. This reveals that almost the whole of the 10 per cent. difference between Devon and Wiltshire first lactation culls, which appears in Table X, was concentrated in the genital diseases, 19 per cent. of the 121 Devon culls being on account of genital disease (which includes undiagnosed infertility) compared with 10.6 per cent. of the 197 Wiltshire culls. The lower rate associated with "other diseases" in the older cows of the Devon area should also be noted, but this category contains a wide variety of affections and not enough of any one type to provide useful information.

TABLE IX
ESTIMATED AVERAGE RATES OF CULLING (PER CENT.) CLASSIFIED BY REASON GIVEN

	Devon		Wiltshire	
	1953–4	1954–5	1953–4	1954–5
DISEASED				
Died on farm	1·05	1·19	0·91	0·81
Disease & accident	4·65	7·34	3·57	4·34
Infertile	2·69	1·90	2·51	1·68
Total	8·39	10·43	6·99	6·83
Reactor to tuberculin	2·81	4·83	6·99	1·40
UNECONOMIC (*not diseased*)				
Aged	2·36	2·11	1·61	1·27
Poor milk yield	4·43	4·85	5·19	5·21
Total	6·79	6·96	6·80	6·48
Surplus	6·22	3·57	2·85	4·01
Total culling	24·21	25·79	23·63	18·72

TABLE X
CULLING ON ACCOUNT OF DISEASE: AGE DISTRIBUTION AND RATES OF CULLING WITHIN AGE GROUPS

Age distribution of culls (per cent.)

	Lactation number				
	1	2–3	4–5	6+	Total
Devon	14	35	27	24	100
Wiltshire	12	39	28	21	100
As per cent. of culls in the same age group.					
Devon	35	39	40	35	
Wiltshire	25	35	41	34	

Morbidity

Only a general review of morbidity will be given in the present paper, detailed studies of individual diseases being published separately. Incidences are

TABLE XI
TYPES OF DISEASE LEADING TO CULLING OF COWS OF DIFFERENT AGES ; PER CENT. OF TOTAL CULLS IN THE AGE GROUP

Type of disease	Devon area				Wiltshire			
	Lactation Number				Lactation Number			
	1	2–3	4–5	6+	1	2–3	4–5	6+
Genital	19·0	15·6	18·3	14·5	10·6	15·2	16·4	13·0
Infectious	6·6	15·6	13·0	13·1	5·1	12·3	14·2	11·0
Metabolic	0	0	2·9	1·9	0	0	1·5	1·2
Others	9·1	7·6	6·2	5·1	8·1	10·4	12·4	10·6
Total culls	121	276	208	214	197	454	274	246

presented as numbers of animals affected within the 12-month period per cent. animals at risk. Thus a cow affected several times by mastitis appears as a single affected animal. The incidences of difficult calving and stillbirths are calculated as percentages of the total full-term calvings ; the incidence of retained placenta is based on total parturitions (all abortions included); the incidence of milk fever is based on total parturitions less the early abortions (before 240 days); incidence of "other genital disease" is based on total cows. Abortions of heifers are excluded from the estimates because it is felt that the data were unreliable, since heifers are frequently not under constant observation and early abortions therefore escape detection much more frequently than they do with cows that have entered the dairy herd. The estimated incidences are presented in Tables XII to XIV, only those diseases of appreciable importance being mentioned. The totals in these tables are not incidences per cow or per parturition, because the same cow may be represented in several of the items making up a total; for example, a difficult calving associated with stillbirth may be followed by retained placenta and metritis. They do however help in discussing two questions, the differences between Devon and Wiltshire incidences and the differences between the two years of the survey.

When the same field workers carry out a survey in two successive years, an increase in the recorded incidences may indicate a real increase or it may indicate an increase in their skill in elucidating the information, an increase which may affect certain categories of disease and not others. Similarly, when two different areas are surveyed by two different people, the differences between the areas may be real differences, or wholly, or partly indices of differences in the skill of the field workers.

The totals of Tables XII and XIV show consistent differences between years and between areas, but there is no consistent difference in the total incidence of infectious diseases (Table XIII). If we assume that injuries and accidents are random occurrences, then the increase in their incidence from one year to the next gives an estimate of the increase in the skill of the field workers. There was very little difference between Devon and Wiltshire in their incidence or in the incidence of teat and udder injuries, but the difference between years was constant at 0.6 per cent. which is sizeable in relation to the average recorded incidence of these categories of disease. There is a strong suspicion, therefore, that the apparent increase from one year to the next of those other diseases (difficult calving, abortion, "other genital diseases," acetonaemia, lameness and teat affections) for which the increase was consistent in both areas, wholly or largely represents an increase in the skill of the observers. There is no suggestion from the data on injuries of any real difference between observers, though this does not rule out the possibility that one field worker may have collected more accurate data than the other for certain diseases.

The most frequent single symptom recorded was mastitis, affecting about 10 per cent. of cows per annum. Of the remainder, most of those affecting more than 2 per cent. of cows were closely associated with parturition. Summer mastitis and milk fever were markedly more frequent in 1953/54 than in the following year in both areas. Bloat was much more common in Wiltshire than in Devon. Foul foot had the same incidence in both areas.

Economic Loss

Some estimate of the relative economic importance of various categories of disease can be obtained from the prices received for culls. This information was obtained in the Devon area and though the numbers of culls on which to base estimates are rather small, in view of the variation in price within any category, the picture is sufficiently clear to show the relative importance of the principal diseases that lead to the disposal of affected cows.

In Table XV, the mean prices are shown for all types of cull, the prices for designated herds being shown separately. The differences between designated and non-designated groups were very marked for animals culled as infertile and surplus. This suggests that most animals from the infertile group were sold for dairying. There was a marked increase in price (£15·3) in the second year for surplus animals, and smaller increases for the diseased and infertile groups (£4 and £4·7).

The estimated mean prices received from surplus animals have been used to estimate the capital depreciation of diseased cows. In Table XVI, the second and third columns add up to £60 and the fifth and sixth columns to £75·3. In both years, the greatest depreciation per cow was caused by Johne's disease. However, when one takes into account the numbers of animals involved and the raising factors involved in estimating the total depreciation for the population surveyed, mastitis appears as the most important disease. There is a

(*Concluded at foot of column* 1, *page* 581)

TABLE XII
ESTIMATED INCIDENCE OF PARTURITIONAL DISEASES

Disease	Devon area			Wiltshire		
	1953–4	1954–5	Mean	1953–4	1954–5	Mean
Difficult calving	2·36	3·78	3·07	1·22	1·49	1·36
Stillborn calf	1·95	2·97	2·46	3·12	2·76	2·94
Abortion	4·06	5·33	4·70	2·89	5·24	4·06
Retained placenta	3·39	2·53	2·96	1·92	2·74	2·33
Other genital diseases	1·78	2·91	2·34	0·57	1·56	1·06
Total	13·54	17·52	15·53	9·72	13·79	11·75

TABLE XIII
ESTIMATED INCIDENCE OF PRINCIPAL INFECTIOUS DISEASES

Disease	Devon area			Wiltshire		
	1953–4	1954–5	Mean	1953–4	1954–5	Mean
Mastitis	9·36	14·07	11·72	12·26	8·51	10·38
Summer mastitis	2·84	1·63	2·24	2·00	0·80	1·40
Johne's disease	0·42	0·27	0·34	0·58	0·81	0·70
Winter scours	0·25	0·72	0·48	1·53	—	0·76
Foul foot	1·83	1·84	1·84	1·72	2·06	1·89
Total	14·70	18·53	16·62	18·09	12·18	15·13

TABLE XIV
ESTIMATED INCIDENCE OF PRINCIPAL NON-INFECTIOUS DISEASES

	Devon area			Wiltshire		
	1953–4	1954–5	Mean	1953–4	1954–5	Mean
METABOLIC						
Milk fever	3·75	2·89	3·32	2·93	1·93	2·43
Acetonaemia	0·58	0·81	0·70	0·22	0·39	0·30
Grass tetany	0·29	—	0·14	0·28	0·51	0·40
Total	4·62	3·70	4·16	3·43	2·83	3·13
ALIMENTARY						
Bloat	0·66	0·60	0·63	2·17	1·72	1·94
Digestive disturbances	1·74	1·46	1·60	1·06	0·96	1·01
Total	2·40	2·06	2·23	3·23	2·68	2·95
TRAUMATIC						
Injuries and accidents	0·46	0·99	0·72	0·44	1·09	0·76
Teat and Udder injuries	0·99	1·61	1·30	0·85	1·53	1·19
Lameness (ex. foul foot)	0·64	3·31	1·98	1·02	1·86	1·44
Total	2·09	5·91	4·00	2·31	4·48	3·39
OTHERS						
Teat affections	0·38	1·03	0·70	0·11	0·65	0·38
Respiratory and head affections (ex husk)	1·47	1·13	1·30	0·68	0·76	0·72
Husk	0·26	1·33	0·80	—	—	—
Grand Total	11·22	15·16	13·19	9·76	11·40	10·57

TABLE XV
ESTIMATED MEANS OF PRICES (£) RECEIVED FOR ANIMALS CULLED UNDER SIX MAIN CATEGORIES

	1953–4			1954–5		
	Designated	Non-designated	Weighted mean	Designated	Non-designated	Weighted mean
Death on farm	2·5	2·5	2·5	3·4	7·0	4·3
Disease, accident and T.T. reactors	37·0	39·6	38·0	40·8	43·0	42·0
Infertile	51·2	40·9	45·8	53·2	44·1	50·5
Aged	39·1	35·9	38·0	36·9	37·1	37·0
Poor Yield	55·0	52·6	54·3	52·7	50·7	52·1
Surplus	64·5	45·8	60·0	76·8	66·4	75·3

TABLE XVI
ESTIMATED CAPITAL DEPRECIATION OF DISEASED COWS IN THE DEVON AREA

	1953–4			1954–5		
	Number culled	Estimated mean price £	Estimated loss/cow	Number culled	Estimated mean price £	Estimated loss/cow
Johne's disease	8	13·0	47·0	3	15·7	59·6
Injuries and diseases of locomotor system	13	24·6	35·4	8	16·4	58·9
Injuries and diseases connected with calving	11	29·8	30·2	9	38·3	37·0
Mastitis	17	41·4	19·6	35	45·2	30·1
Abortion	8	43·6	16·4	17	43·0	32·3
Summer mastitis	6	56·4	3·6	15	44·5	30·8

TABLE XVII
ESTIMATED TOTAL DEPRECIATION, FOR THE AREA OF DEVON SURVEYED, OF COWS AFFECTED BY THE MORE IMPORTANT DISEASE CONDITIONS

(Thousands of £)

	1953–54	1954–55	Total
Johne's disease	7·7	3·3	11·0
Injuries and diseases of locomotor system	9·3	14·4	23·7
Injuries and diseases connected with calving	4·2	9·8	14·0
Mastitis	7·0	26·7	33·7
Abortion	1·3	15·5	16·8
Summer mastitis	0·7	10·8	11·5
Total	30·2	80·5	110·7

Appendix

SAMPLING FRACTIONS AND RESPONSES

	Designated			Non-designated		
DEVON—1953–4						
Total herds	3,555			6,845		
First stage sampling fractions	1/16			1/32		
Classification by herd size	1–5	6–10	11+	1–5	6+	
Herds within chosen area in first stage sample	5	10	57	4	47	
Second stage sampling fractions	0	0	1/1	0	1/1	
Herds in final sample			57		47	
Herds returning records			53		41	
Raising factors used in analysis			17		37	
Per cent. response			93		87	
1954–5						
Total herds	3,902			6,473		
First stage sampling fractions	1/16			1/24		
Classification by herd size	1–20	21+		1–10	11+	
Herds within chosen area in first stage sample	15	52		9	76	
Second stage sampling fractions	0	1/1		0	3/4	
Herds in final sample		52			56	
Herds returning records		46			41	
Raising factors used in analysis		18			48	
Per cent. response		88			73	
WILTSHIRE—1953–4						
Total herds	1,926			1,174		
First stage sampling fractions	1/20			1/10		
Classification by herd size	1–9	10–25	26+	1–9	10–25	26+
Herds in first stage sample	6	28	65	24	70	32
Second stage sampling fractions	0	2/3	1/2	0	2/7	1/1
Herds in final sample		18	33		20	32
Herds returning records		17	32		16	20
Raising factors used in analysis		32	39		42	15
Per cent. response		94	97		80	63
1954–5						
Total herds	1,610			1,419		
First stage sampling fractions	1/20			1/10		
Classification by herd size	1–10	11+		1–10	11–25	26+
Herds in first stage sample	7	76		32	73	47
Second stage sampling fractions	0	2/3		0	1/3	1/2
Herds in final sample		53			24	24
Herds returning records		47			18	10
Raising factors used in analysis		31			39	45
Per cent. response		89			75	42

Acknowledgments and References appear at the foot of col. 1 overleaf

News and Comment

CONGRESS WEEK

The 1959 Congress opens at the Metropole Hotel, Folkestone, to-morrow, Sunday, when delegates will first attend Evensong, and later enjoy a reception given by the two Divisions whose members are acting as hosts. For the official opening ceremony on the following morning the Association will be honoured by the presence of the Marquess of Abergavenny.

An attractive programme, both professionally and socially, has been arranged by the Provisional Committee, under its chairman Mr. G. S. Peyton, and only those who have attended the meetings of this or of former committees, can know of the enormous amount of thought, work and anxiety involved, and of the months of labour that fall to the lot of the honorary Congress secretary, this year Mr. P. M. Sambrook. As the programme has been published already in this journal it is unnecessary to dwell upon it in detail. In passing it may be noted that all the places at the wine-tasting ceremony (good heavens! as Archdeacon Grantley would have said) have been —we will not say snapped up, as that would suggest an almost indecent pursuit of the demon rum—but at least bespoken.

From advance bookings, it is clear that the Folkestone congress will be very well attended, and as the town is easily reached from all over the south and south-east of the country, as well as from London, members who can spare time to attend only one or two sessions are well catered for.

As in the past few years all the papers read, and the discussions on them, will be published later in the form of a special additional number of THE VETERINARY RECORD.

Everything looks set fair for a most enjoyable and fruitful week, and we wish the organisers every success and the delegates good fellowship, good weather and good pleasure.

HOSTS TO CONGRESS

For 1959, two Divisions of the B.V.A. are acting as hosts to Congress; they are the South Eastern Veterinary Association and the Sussex Veterinary Society. The following notes have been written up from material they were good enough to supply.

The South Eastern was founded by Kentish practitioners in 1912, and the membership of approximately 65, which has remained relatively constant, caters primarily for general practitioners, although various distinguished veterinary surgeons from the London "fringe" have honoured the Division with their membership.

Among notable past Presidents of the Division are three who have also been Presidents of the British Veterinary Association: Mr. J. W. Bruford, Mr. S. F. J. Hodgman and Mr. J. McConnachie Ingram. This year's incoming B.V.A. President, Mr. S. L. Hignett, was President of the South Eastern in 1954.

The Division has also numbered among its past Presidents eminent research workers, and clinicians, amongst them G. W. Dunkin, remembered for his work on distemper immunity, F. C. Gillard, and Dr. A. D. McEwen; Professor L. P. Pugh, one of the first professors appointed to the Cambridge Veterinary School, is a past President also. Among the most distinguished "ordinary" members was Sir Thomas Dalling.

This is the third time that the Sussex has been privileged to be joint hosts for a B.V.A. Congress.

The inaugural meeting of the Division was held on May 28th, 1936, and the first President was Mr. Pritchard, then resident in Brighton.

Membership of the Division is confined to qualified veterinary surgeons, and members are drawn from practitioners within the area, from research workers and from members of the Animal Health Division of the Ministry. Meetings are normally held at Brighton, and it is an aim of the Division to foster a social atmosphere and to make the meetings informal and friendly.

Mr. S. L. Hignett is a member of the Sussex Division, a past President, and is one of the Division's representatives on Council of the B.V.A. Mr. J. Mc. C. Ingram, immediate past President of the B.V.A., is a member also.

AN ADDITIONAL FOOT-AND-MOUTH SAFEGUARD

As from December 13th, 1959, every consignment of meat and edible offal imported into Great Britain from the Argentine, Brazil, Chile and Uruguay will have to be certified by an authorised officer of the Government of the country of origin as having

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A Survey of Diseases and Losses—*Concluded.*

large error attached to these estimates because of the small numbers of animals in the sub-groups; a more extensive set of data might well make fairly radical changes in the relative order of importance of these diseases.

Acknowledgments.—The authors are deeply indebted to the 341 farmers who kept special records for the survey and freely gave time to discuss details with the field workers. The Devon and Wiltshire branches of the National Farmers Union kindly wrote to all farmers drawn in the samples asking for their co-operation.

We are also indebted to the Milk Marketing Board for the first-stage samples and to Misses M. E. Davis and M. G. Hills for help with the statistical analysis.

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come from approved frigorificos (combined slaughtering and meat freezing plants). This is a further precaution taken by the Minister of Agriculture and the Secretary of State for Scotland to prevent foot-and-mouth disease being brought into this country from South America.

Frigorificos approved by the Ministry are already regularly inspected by British veterinary officers stationed in South America.

THE ANIMAL HEALTH TRUST

The following educational awards for the period 1959/60 have been announced:—

Wellcome Fellowships. Mr. P. H. Lamont, B.SC., M.R.C.V.S. (Senior Wellcome Fellowship), to undertake investigation of enteroviruses of the pig, and their possible rôle in disease, at the Department of Animal Pathology, Cambridge, under Professor W. I. Beveridge. Mr. I. R. Falconer, B.SC., to study thyroid-ovarian-pituitary inter-relationship at the Department of Biological Chemistry, University of Aberdeen, under Dr. H. A. Robertson.

Vitamealo Fellowship. This new award was founded to commemorate the 70th birthday of Lord Rank and his close association with Vitamins Limited, by whom it was donated. The first recipient is Mr. D. B. Ross, B.A., VET.M.B., M.R.C.V.S., who is to continue work on some of the more fundamental aspects of magnesium metabolism, particularly intestinal absorption. Initially Mr. Ross will work at the Department of Animal Pathology, Cambridge.

Research Training Scholarship. Mr. W. A. G. Charleston, M.R.C.V.S., to undertake an investigation into the mechanics of the quadrupedal vertebral column, with special reference to the dog and the cat, under Professor Ottaway at the Department of Veterinary Anatomy, University of Bristol.

Evans Final Year Scholarships

Royal Veterinary College, London: A. R. Hopkins, R.V.C. Field Station, N. Mimms, Herts. (Nominated, February, 1959.)

Glasgow Veterinary School: K. C. Calder, Jamaica, B.W.I.

Bristol University: M. D. Peace, The Grove, Woodend Lane, Fillongley, nr. Coventry.

Liverpool University: Jointly between Kwame Obeng Gyening, 2, Prince's Avenue, Liverpool, 8, and David Walker, 37, Wallace Road, Loughborough, Leics.

Cambridge University: Brian Loveday, 34, Gilbert Road, Cambridge.

Royal (Dick) School of Veterinary Studies, Edinburgh: N. T. Middleton, 5, Thorn Road, Bramhall, Cheshire.

Veterinary College of Ireland: Francis H. Austin, The Ward, Co. Dublin, Eire.

THE BRITISH VETERINARY POULTRY ASSOCIATION

The summer meeting of the Association was held at the Harper Adams Agricultural College, Newport, Shropshire, on July 28th. The newly elected president, Dr. J. E. Wilson, was in the chair, and there was a large attendance of members and guests.

In the morning Dr. H. Temperton took members on a tour of the National Institute of Poultry Husbandry, and in the afternoon a paper on "The Breeder's Part in Poultry Disease Control" was presented by Mr. Cyril Thornber of Thornber Bros. Ltd. The paper, illustrated by coloured slides, was of considerable interest to members.

Following the meeting, members travelled to Wilmslow at the invitation of Mr. G. V. Short for a visit (on July 29th) to the I.C.I. (Pharmaceutical) Research Laboratories at Alderley Park.

INTERNATIONAL ASSOCIATION OF VETERINARY FOOD HYGIENISTS

The second symposium of this Association will be held in Basel, Switzerland, on May 15th to 21st, 1960. The programme will include the following papers whose authorship will be announced at a later date:—

"Minimum requirements for *ante-mortem* and *post-mortem* inspection with special reference to international acceptance"; "Experience in preservation of foods of animal origin by the use of ionising radiation"; "Disposal of meat from animals exposed to ionising radiation or containing radioactive material"; "Bacteriological examination and disposal of canned meat and fish products"; "Epidemiology of Salmonellosis in animals and man"; "Milk sterilisation by means of ultra high temperature flash heating (Uperisation)"; and "Milk hygiene in tropical and subtropical countries."

In addition to the main papers, short communications will be read in connexion with the main subjects or in other fields of veterinary food hygiene. Notification of such short papers must be made by December 15th, 1959. They should have a maximum length of 600 words and must be written in one of the official languages (English, French, German). All lectures and discussions will be translated simultaneously in the 3 official languages.

All further information may be obtained from the Secretariat, 4, Elsasserstr, Basel, Switzerland.

THE JOINT MEASUREMENT SCHEME

The following objections have been dealt with recently under the rules of the Joint Measurement Scheme, and in each case two referees appointed by the Royal College of Veterinary Surgeons have carried out the necessary remeasurements:—

(a) At Peterborough Show, the show pony "Nuts and May," owned by Miss A. Hughes of Skellingthorpe, nr. Lincoln. Objection upheld. Pony not eligible to compete in classes not exceeding 12.2 hands.

(b) At Nantwich Show, show pony "Fortune," owned by Miss P. Morphet of Preston. Objection upheld. Pony not eligible to compete in classes not exceeding 14.2 hands.

(c) At Didsbury (Manchester) Show, jumping pony "Velvet," owned by Miss B. Roper of Failsworth, Manchester. Objection upheld. Pony not eligible to compete in classes not exceeding 14.2 hands.

MR. KEITH ENTWISTLE

Mr. Bryan Boswood writes:—

Keith Entwistle's tragic death will have appalled his many friends. It is probably true to say that he was the most talented British veterinary student to graduate this year. It is certainly true to say that his intellectual ability was so far ahead of that of his veterinary contemporaries at Cambridge that every one of them ungrudgingly acknowledged his supremacy.

But it was not only his excellent mind which made him so remarkable a person. He combined this with a diversity of interests which is all too rare in gifted students: no topic was uninteresting to him. His prowess in sport justified his inclusion in his college's athletics team. His public-spiritedness led him to accept and competently to fill the posts of secretary and, later, president of the university veterinary society.

His humility was such that no one was overwhelmed by his greatness; indeed one had to be with him some time before one was aware of his wide knowledge and understanding—his friendly charm concealed it.

There was every justification for expecting fame for Keith—fame much wider than the limits of the profession for which he studied. Such expectation has been shattered. All who knew him will wish to sympathise with those who have been so dreadfully bereaved.

Mr. E. C. Straiton writes:—

Keith Entwistle was a student in this practice during the past 2 years. He was a true gentleman who inspired in me, by his personal example, tremendous confidence in the future of our profession. His untimely death is a great loss to us all.

He possessed that rarest of all combinations—a brilliant brain coupled with outstanding practical ability; moreover he had an athlete's enthusiasm for life and work, a charming personality, kindness, and thoughtfulness. These qualities are some measure of the tragedy of his premature passing.

He was, without doubt, the best student I have ever known and a great credit to Cambridge University. It was a privilege to have known him.

THE ROYAL COLLEGE OF VETERINARY SURGEONS

The undermentioned ladies and gentlemen were admitted to membership of the Royal College of Veterinary Surgeons on the dates indicated:—

Amodu, Agboola Adeola Adebayo, Emuri-Ekiti, Nigeria, July 1st, 1959, B.V.SC. (BRIS.); Amor, Oliver Francis, Way Farm, Bickleigh, Nr. Tiverton, Devon, June 27th, 1959, B.A., VET.M.B. (CANTAB.); Anderson, David Andrew Younger, Goynd Farm, Glen Ogil, Forfar, Angus, July 13th, 1959, B.V.M.S. (EDIN.); Anderson, William George Fyfe, Bridgend, Kintore, Aberdeenshire, July 13th, 1959, B.V.M.S. (EDIN.); Anderson, William Smith, 15, Glebe Road, Galston, Ayrshire, July 4th, 1959, B.V.M.S. (GLAS.); Angus, Stuart, 27, Boggs, Pencaitland, East Lothian, July 4th, 1959, B.V.M.S. (GLAS.); Aspinall, Kathleen Mary (Miss), 11, Finkil Street, Hove Edge, Brighouse, Yorks., July 4th, 1959, B.V.SC. (LIV.); Axford, Roger Francis Ernest, Belgrave Cottage, Quarry Hill, Horbury, Wakefield, Yorks., June 27th, 1959, B.A., VET.M.B. (CANTAB.); Bainbridge, Joseph Robert, East Lodge, Ecton, Northampton, July 1st, 1959, B.V.SC. (BRIS.); Begg, James Grant, Dhu Crag, Stonehouse Road, Strathaven, Lanarks., July 4th, 1959, B.V.M.S. (GLAS.); Betteridge, Keith James, Deepdene, Dibden, Nr. Southampton, Hants., July 1st, 1959, B.V.SC. (BRIS.); Bird, Christine Margaret (Miss), 4, Whin Hill Road, Bessacarr, Doncaster, Yorks., July 4th, 1959, B.V.SC. (LIV.); Bolton, Frederick Noel, 13, St. James Avenue, Carlisle, Cumberland, July 4th, 1959, B.V.M.S. (GLAS.); Booth, James Morley, 3, Fern Bank, Cockermouth, Cumberland, July 13th, 1959, B.V.M.S. (EDIN.); Boothman, John Henry, Troopers Fields, Blessington, Co. Wicklow, Eire, July 2nd, 1959, Dublin; Boswood, Bryan, 680, Walmersley Road, Bury, Lancs., June 27th, 1959, B.A., VET.M.B. (CANTAB.); Boyce, William Thomas Max, 4, Moira Drive, Bangor, Co. Down, July 2nd, 1959, Dublin; Brough, Robert James, 29, Mingulay Crescent, Glasgow, N.2, July 4th, 1959, B.V.M.S. (GLAS.); Brown, David, Glenmore, George Street, Alfreton, Derbyshire, July 1st, 1959, B.V.SC. (BRIS.); Browne, Hugh Geoffrey, Gorticaw, Drumahoe, Co. Derry, July 2nd, 1959, B.A., M.V.B. (T.C.D.); Burnside, Raymond Emerson, 19, Carriagehill Drive, Paisley, Renfrewshire, July 4th, 1959, B.V.M.S. (GLAS.); Butler, Wallace Frederick, Grange Farm, Upper Langford, Nr. Bristol, Somerset, July 1st, 1959, B.V.SC. (BRIS.); Butterfield, Walter Edward, Hillside, Broughton-in-Furness, Lancs., July 4th, 1959, B.V.SC. (LIV.); Byrne, James Francis, Stonepark, Aclare, Co. Sligo, Eire, July 16th, 1959, M.V.B. (N.U.I.); Callender, Derek Ernest, 30, Buxton Road, Leek, Staffs., July 4th, 1959, B.V.SC. (LIV.); Care, Anthony Deuchar, 2, Point Neptune, Fowey, Cornwall, July 13th, 1959, B.V.M.S. (EDIN.); Charleston, William Anthony George, 18, Kings Road, Honiton, Devon, July 1st, 1959, B.V.SC. (BRIS.); Cooper, Elizabeth Sally Ann (Miss), Bullbeggars, Berkhamsted, Herts., July 1st, 1959, B.V.SC. (BRIS.); Corcoran, Martin Patrick, Two Mile Borris, Thurles, Co. Tipperary, Eire, July 2nd, 1959, Dublin; Corr, Charles Joseph, Copglass, Moyne, Co. Longford, Eire, July 16th, 1959, M.V.B. (N.U.I.); Corry, Edward M., Central Hotel, Roscrea, Co. Tipperary, Eire, July 16th, 1959, M.V.B. (N.U.I.); Crosby, Ronald Kenneth, DIP.V.S. (BUENOS AIRES), c/o Bank of London & South America, 40, Queen Victoria Street, London, E.C.4, July 4th, 1959, London; Cruickshank, Andrew Keith, 103, Raikes Road, Skipton, Yorks., July 13th, 1959, B.V.M.S. (EDIN.); Cushing, Peter Middleton, 180, Hall Road, Norwich, Norfolk, July 1st, 1959, B.V.SC. (BRIS.); Davidson, James Bell, Spa Poultry Farm, Ballynahinch, Co. Down, July 4th, 1959, B.V.M.S. (GLAS.); Davidson, Peter Anthony Stewart, Alderleigh, Regents Road, St. Helens, Lancs., July 4th, 1959, B.V.SC. (LIV.); Davies, David William, Cefn Ganlleg, Glan Conway, Denbighshire, July 13th, 1959, B.V.M.S. (EDIN.); Davies, Henry Sadler, 54, Bedford Avenue, Rock Ferry, Cheshire, July 4th, 1959, B.V.SC. (LIV.); Davies, James Lloyd, Blaenglowonfach, Talgarreg, Llandyssul, Cards., July 4th, 1959, B.V.M.S. (GLAS.); Davis, Marjorie Ann (Miss), 43, San Remo Towers, Boscombe, Bournemouth, Hants., July 13th, 1959, B.V.M.S. (EDIN.); Demery, Valentine William, 9, The Green Road, Blackrock, Co. Dublin, July 2nd, 1959, Dublin; Dickson, Herbert Patterson, 1A, Sandymount Avenue, Ballsbridge, Dublin, July 2nd, 1959, Dublin; Dobbie, Andrew James Cunningham, Madeira Villa, Serpentine Road, Rothesay, Bute, July 4th, 1959, B.V.M.S. (GLAS.); Drummond, John Neil, Whitehill, Prestwick Road, Monkton, Ayrshire, July 4th, 1959, B.V.M.S. (GLAS.); Eaglesome, Matthew David, 46, Irvine Road, Kilmarnock, Ayrshire, July 4th, 1959, B.V.M.S. (GLAS.); Flanagan, Patrick Declan, Dunlo Street, Ballinasloe, Co. Galway, Eire, July 16th, 1959, M.V.B. (N.U.I.); Gerrand, Waistel Gordon, 49, Northesk Road, Montrose, Angus, July 4th, 1959, B.V.M.S. (GLAS.); Gordon, Mary Constance Margaret (Miss), 29, Park Crescent, Newtown, St. Boswells, Roxburghshire, July 13th, 1959, B.V.M.S. (EDIN.); Grant, Gregor, 44, Whirlow Lane, Sheffield, 11, Yorks., July 4th, 1959, B.V.M.S. (GLAS.); Gunn, Sydney Dixon, 20, Winchester Road, Tilgate, Crawley, Sussex, July 13th, 1959, B.V.M.S. (EDIN.); Gupta, Baij Nath, B.V.SC. (MADRAS.), Animal Husbandry Dept., Lucknow, U.P., India, July 4th, 1959, Cambridge; Halhead, William Anthony, Firbank, Priory Close, Carmarthen, July 1st, 1959, B.V.SC. (BRIS.); Hamilton, John Guthrie, The Laurels, Mill Lane, Bold, Nr. Widnes, Lancs., July 4th, 1959, B.V.SC. (LIV.); Harris, Grenville William, 66, Howdenhall Road,

Edinburgh, July 13th, 1959, B.V.M.S. (EDIN.); Hassan, Yahia Mohamed, DIP.V.S. (KHARTOUM), University of Khartoum, P.O. Box 32, Khartoum North, Sudan, July 4th, 1959, London; Hassett, John Lawrence, Moyriesk, Ennis, Co. Clare, Eire, July 16th, 1959, M.V.B. (N.U.I.); Haydon-Jones, Robert Humphrey, 5, Montague Place, London, E.14, June 27th, 1959, B.A., VET.M.B. (CANTAB.); Heard, Terrence William, New Farm, Corsham, Wilts, June 27th, 1959, B.A., VET.M.B. (CANTAB.); Hoddinott, Paul Quance, 302, Hilperton Marsh, Trowbridge, Wilts., July 1st, 1959, B.V.SC. (BRIS.); Hunt, George Edward, Sprink Farm, Dickens Lane, Poynton, Stockport, Cheshire, July 13th, 1959, B.V.M.S. (EDIN.); James, Walter, 14, Higher Lane, Fazakerley, Liverpool, 9, July 4th, 1959, B.V.SC. (LIV.); Jenkins, John Tristram, 37, Redhill, Kiveton Park, Nr. Sheffield, Yorks., July 4th, 1959, B.V.SC. (LIV.); Jones, Alan Phillips, Greenlands, Serocold Avenue, Skewen, Glam., July 13th, 1959, B.V.M.S. (EDIN.); Ker, John, Ker Place, Peebles, July 13th, 1959, B.V.M.S. (EDIN.); King, Laurence Michael, Braemar Cottage, Yelverton, South Devon, July 1st, 1959, B.V.SC. (BRIS.); Kon, Vanda Mary (Miss), 151, The Warren, Mapledurham, Oxon, July 1st, 1959, B.V.SC. (BRIS.); Kydd, Alexander Meldrum, Redhurst, Bellshill, Lanarks., July 4th, 1959, B.V.M.S. (GLAS.); Lake, David Edgar, 101, Wathen Road, Leamington Spa, Warwicks., July 13th, 1959, B.V.M.S. (EDIN.); Lamont, George Blair, Bishop Barn, Dunblane, Perthshire, July 4th, 1959, B.V.M.S. (GLAS.); Lawlor, Florence, Ballynequin, Ardfert, Co. Kerry, Eire, July 2nd, 1959, Dublin; Lawson, Gordon Hugh Kerr, 51, Cluny Drive, Edinburgh, 10, July 13th, 1959, B.V.M.S. (EDIN.); Lea, Keith, Windmill Farm, Hankelow, Crewe, Cheshire, July 1st, 1959, B.V.SC. (BRIS.); Logan, Ernest Fergus, 20, Deerpark Drive, Belfast, July 13th, 1959, B.V.M.S. (EDIN.); Lovett, Charles Ian, Dunvegan, Cottage Road, Wooler, Northumberland, July 13th, 1959, B.V.M.S. (EDIN.); Lowndes, John David, 11, Wellington Road, Ballsbridge, Dublin, July 2nd, 1959, Dublin; Lucas, Kenneth St. John, 11, Sion Hill Avenue, Casemir Road, Rathmines, Dublin, July 16th, 1959, M.V.B. (N.U.I.); Lucke, Jeremy Newton, 113, Greensward Lane, Hockley, Essex, July 1st, 1959, B.V.SC. (BRIS.); McCaig, John, The Vicarage, Swanmore, Southampton, Hants., June 27th, 1959, B.A., VET.M.B. (CANTAB.); McCarthy, William, Farranwilliam, Ardfert, Co. Kerry, Eire, July 16th, 1959, M.V.B. (N.U.I.); McDonald, Thomas Oliver, Ardriston Lodge, Rathoe, Carlow, Eire, July 16th, 1959, M.V.B. (N.U.I.); McDonald, William Edward, Black Lion, Maynooth, Co. Kildare, Eire, July 2nd, 1959, Dublin; McGregor, Donald Steven, 6, Pearce Road, Edinburgh, 12, July 13th, 1959, B.V.M.S. (EDIN.); MacLean, Alexander, Achallader, Bridge of Orchy, Argyll, July 4th, 1959, B.V.M.S. (GLAS.); MacLean, Arthur Alistair, 271, Victoria Road West, Hebburn on Tyne, Co. Durham, July 4th, 1959, B.V.M.S. (GLAS.); McMickan, Walter Oliver, Herriesdale, Haugh of Urr, Castle Douglas, Kirkcudbrightshire, July 4th, 1959, B.V.M.S. (GLAS.); McMurtry, Michael John, 24, Towers Road, Liverpool, 16, July 4th, 1959, B.V.SC. (LIV.); McParland, Patrick James, 14, Davis Street, Keady, Co. Armagh, July 2nd, 1959, Dublin; Marshall, Leslie, c/o Arundale, Birstwith, Nr. Harrogate, Yorks., July 13th, 1959, B.V.M.S. (EDIN.); Mason, Thomas Alfred, Red Hill Mill, Hook-a-Gate, Nr. Shrewsbury, July 1st, 1959, B.V.SC. (BRIS.); Mathieson, Andrew Ogilvie, Milltown, Arbuthnot, Laurencekirk, Kincardineshire, July 13th, 1959, B.V.M.S. (EDIN.); Maughan, Patrick Thomas, Church Street, Crossmolina, Co. Mayo, Eire, July 16th, 1959, M.V.B. (N.U.I.); Mercer, Ann Julie (Miss), 8, Cardinals Walk, Hampton, Middlesex, July 1st, 1959, B.V.SC. (BRIS.); Michael, Henry Philip, Garden House, Cwmgiedd, Ystradgynlais, Swansea, Glamorgan, July 4th, 1959, B.V.SC. (LIV.); Moody, Enid (Miss), 1, Balmoral Road, Ashton-in-Makerfield, Nr. Wigan, Lancs., July 4th, 1959, B.V.SC. (LIV.); Munro, David, 52, Hunter Terrace, Sunderland, Co. Durham, July 13th, 1959, B.V.M.S. (EDIN.); Neil, David Henry, 87, Victoria Road, Salford, 6, Lancs., July 4th, 1959, B.V.SC. (LIV.); Nelson, Colin Greenwood, 5, Dale End, Lothersdale, Nr. Keighley, Yorks., July 1st, 1959, B.V.SC. (BRIS.); Newman, Michael Anthony Hurst, 16, St. Paul's Hill, Winchester, Hants., July 1st, 1959, B.V.SC. (BRIS.); Nicholson, Graeme Gordon, 10, Hawkshead Crescent, Edinburgh, 9, July 13th, 1959, B.V.M.S. (EDIN.); Nolan, Vincent J., The Hermitage, Kilcullen, Co. Kildare, Eire, July 16th, 1959, M.V.B. (N.U.I.); Nyhan, John Finbar, Ballycatten, Ballinspittal, Kinsale, Co. Cork, Eire, July 16th, 1959, M.V.B. (N.U.I.); O'Malley, George Michael, DIP.V.S. (BUENOS AIRES), 16, South Walk, West Wickham, Kent, July 4th, 1959, London; O'Neill, Patrick, Roesboro House, Tipperary, Eire, July 16th, 1959 M.V.B. (N.U.I.); Pandey, Mohan Dutt, B.V.SC. & H. (AGRA), 1,565, Patelmarg, Mathura, U.P., India, July 4th, 1959, London; Pavord, Anthony Dwelly, Westways, Chapel Road, Abergavenny Monmouth, July 1st, 1959, B.V.SC. (BRIS.); Philpott, Mark, Lone Oak, Almondsbury, Bristol, Somerset, June 27th, 1959, B.A., VET.M.B. (CANTAB.); Plenderleith, Robert William James, School House, Auchenheath, Lanark., July 4th, 1959, B.V.M.S. (GLAS.); Schofield, James Basil, 23, Newgate Street, Chester, July 4th, 1959, B.V.SC. (LIV.); Scott, Cameron Donald, 10, Todhills, East Kilbride, Glasgow, July 4th, 1959, B.V.M.S. (GLAS.); Seymour, Stanley, Stobilee, North Road, Dipton, Newcastle upon Tyne, Northumberland, July 13th, 1959, B.V.M.S. (EDIN.); Sharpe, Peter, Kilmore, Glenariffe, Ballymena, Co. Antrim, July 16th, 1959, M.V.B. (N.U.I.); Sherrard, James Conn, The Brook, Campsie, Co. Derry, July 2nd, 1959, B.A., M.V.B. (T.C.D.); Shettigara, Parkala Thunga, B.V.SC. (MADRAS), c/o Mrs. Giriamma Shettigarthy, Kinnimoolly, Udipi, South Kanara, India, July 4th, 1959, London; Simpson, David Thomas, Ingmanthorps Grange, Wetherby, Yorks., July 13th, 1959, B.V.M.S. (EDIN.); Smith, Alan Michael, 50, Frair Street, Reading, Berks., June 27th, 1959, B.A., VET.M.B. (CANTAB); Sood, Devendra Nath, B.V.SC. (MADRAS), c/o Mr. V. P. Sood, 8A/72, W.E. Area, Karol Bagh, New Delhi, India, July 4th, 1959, Cambridge; Stewart, Douglas Munro, 280, Victoria Road, Ruislip, Middlesex, July 1st, 1959, B.V.SC. (BRIS.); Swift, Thomas, c/o 5, Springfield, Dundee, Angus, July 13th, 1959, B.V.M.S. (EDIN.); Trouton, Richard Kells, Annakera, Portadown, Co. Armagh, July 2nd, 1959, Dublin; Wahler, Saw, c/o Director, Veterinary Dept., Rangoon, Burma, July 13th, 1959, B.V.M.S. (EDIN.); Walshe, John, Glenbeha, Roscrea, Co. Tipperary, Eire, July 2nd, 1959, Dublin; Watson, Ewen Escombe Bennet, 41, Hermitage Gardens, Edinburgh, 10, July 13th, 1959, B.V.M.S. (EDIN.); Watt, John Godsman, Meikle Clinterty, Kinellar, Aberdeenshire, July 13th, 1959, B.V.M.S. (EDIN.); Whiteford, Robert Brian, 45, Upper Walthamstow Road, London, E.17, June 27th, 1959, M.A., VET.M.B. (CANTAB.); Wijeratne, Warusahennedige Vernon Soysa, B.V.SC. (CEYLON), PH.D., DIP.AN.GEN. (EDIN.), 43, Fairline Road, Dehiwela, Ceylon, July 4th, 1959, London; Wild, George Samuel Peter, The Lodge, Chase Cliff, Whatstandwell, Matlock, Derbyshire, July 4th, 1959, B.V.SC. (LIV.); Williams, Evan, Park Cottage, Pennant Llanon, Cards., July 4th, 1959, B.V.M.S. (GLAS.); Wilson, James Stuart Robert, 57, Broadway, New Moston, Manchester, 10, July 4th, 1959, B.V.M.S. (GLAS.); Worthington, Peter Thomas, 35, Westbourne Avenue, Burnley, Lancs., July 4th, 1959, B.V.SC. (LIV.).

UNIVERSITY NEWS

Glasgow

The next University of Glasgow refresher course for veterinary surgeons will deal with surgery and reproductive diseases of farm animals. Following previous practice the course will run on alternate Thursday evenings during the winter and spring terms. There appears to be a distinct demand for such courses as hitherto about 60 people have attended throughout the winter. The present subject has not been covered in previous years and anyone interested should consult the advertisement in this issue of THE RECORD. The annual intensive refresher course has already been fully subscribed for the first week in October.

Liverpool

FACULTY OF VETERINARY SCIENCE

Degree of B.V.Sc., Third Examination
Part I (Pharmacology), June, 1959

Arnott, J. N.; Bush, B. M.; Carding, A. H.; Cotgreave, D. H.; Dunton, J.; Edwards, G. B.; Giam, C. H.; Harding, A. J.; Horrocks, Susan; Kemble, P. R.; Kennington, D. A.; Littlewood, H. F.; Maclean, C. W.; Malone, J.; Strawbridge, G. E.; Westbrook, R.; Whittaker, J. F.; Williams, G. V.

Degree of B.V.Sc., First Examination
Part I (Chemistry), June, 1959

Anwo, L. A.; Baskerville, A.; Batchelor, A. L.; Bell, J. C.; Bramley, P. S.; Brinkler, J. L.; Counter, D. E.; Dennison, Margaret; Edington, N.; Fabby, D. C.; Flood, P. F.; Furnevall, Elizabeth A.; Hayes, M. J.; Hayhurst, F. G.; Howard, Nina S. K.; Hughes, P. H.; Ishmael, J.; Jones, T. W.; McNaughton, J. R.; Markusfeld, O.; Milroy, J. P.; Moloney, V.; Na'isa, B. K.; Nicholson, P. J.; Pinckheard, Ann; Thompson, J. D.; Townsend, C. J. A.; Udall, N. D.; Worrall, P. R.; Wosu, O. L.

Part II (Physics)

Akpokodje, J. U.; Anwo, L. A.; Baskerville, A.; Batchelor, A. L.; Bell, J. C.; Bramley, P. S.; Brinkler, J. L.; Counter, D. E.; Dennison, Margaret; *Edington, N.; Fabby, D. C.; Flood, P. F.; Furnevall, Elizabeth A.; Halliwell, J. D.; Hayes, M. J.; Hayhurst, F. G.; Howard, Nina S. K.; Hughes, P. H.; Ishmael, J.; Jones, T. W.; Leech, B. S.; McNaughton, J. R.; Milroy, J. P.; Moloney, V.; Na'isa, B. K.; Nicholson, P. J.; Pinckheard, Ann; Thompson, J. D.; Townsend, C. J. A.; Udall, N. D.; Worrall, P. R.; Wosu, O. L.

Part III (Botany)

Akpokodje, J. U.; Anwo, L. A.; Baskerville, A.; Batchelor, A. L.; Bell, J. C.; Bramley, P. S.; Brinkler, J. L.; Counter, D. E.; Dennison, Margaret; Edington, N.; Fabby, D. C.; Flood, P. F.; Furnevall, Elizabeth A.; Halliwell, J. D.; Hayes, M. J.; Hayhurst, F. G.; Howard, Nina S. K.; Hughes, P. H.; Ishmael, J.; Jones, T. W.; Leech, B. S.; McNaughton, J. R.; Milroy, J. P.; Moloney, V.; Na'isa, B. K.; Nicholson, P. J.; Pinckheard, Ann; Thompson, J. D.; Townsend, C. J. A.; Udall, N. D.; Worrall, P. R.; Wosu, O. L.

Part IV (Zoology)

Akpokodje, J. U.; Anwo, L. A.; Baskerville, A.; Batchelor, A. L.; Bell, J. C.; Bramley, P. S.; Brinkler, J. L.; Counter, D. E.; Dennison, Margaret, Edington, N.; Fabby, D. C.; Flood, P. F.; Furnevall, Elizabeth A.; Halliwell, J. D.; Hayes, M. J.; Hayhurst, F. G.; Howard, Nina S. K.; Hughes, P. H.; Ishmael, J.; Jones, T. W.; Leech, B. S.; McNaughton, J. R.; Milroy, J. P.; Moloney, V.; Nicholson, P. J.; Pinckheard, Ann; Thompson, J. D.; Townsend, C. J. A.; Udall, N. D.; Wosu, O. L.

* Passed with Distinction.

PERSONAL

Births

GOODWIN.—On August 24th, 1959, at the Merthyr Guest Hospital, Templecombe, to Bundle, wife of Peter Goodwin, B.V.SC., M.R.C.V.S., a twin son and daughter.

MITCHELL.—On August 21st, 1959, to Sheila Mitchell, M.A. (*née* Maclachlan), wife of Ken Mitchell, M.R.C.V.S., of Usk, Mon., twins—a son and daughter—brother and sister for Alastair and Sandra.

COMING EVENTS

August

30th to 5th September. 77th Annual Congress of the British Veterinary Association in Folkestone. (Official opening Monday, August 31st.)

September

9th (Wed.). Meeting of the Lincolnshire and District Division at the Berkeley Hotel, Doncaster Road, Scunthorpe, 2.15 p.m.

16th (Wed.). General Meeting of the South Wales Division at the University of Wales, Geography Dept., Alexander Road, Aberystwyth, 2.15 p.m.
Meeting of the Welsh Branch to be held jointly with the South Wales Division, as listed above.

23rd (Wed.). General Meeting of the Lancashire Veterinary Association, Patton Arms, Warrington, 7.45 p.m.

24th (Thurs.). Meeting of the Supplementary Veterinary Register Division at 7, Mansfield Street, W.1, at 3 p.m. Committee meeting at 2 p.m.

25th (Fri.). Meeting of the North Wales Division at the Department of Agricultural Chemistry, Bangor, 2 p.m.

30th September, 1st and 2nd October (Wed., Thurs. and Fri.). Quarterly Meeting of Council, R.C.V.S.

October

1st (Thurs.). Banquet of the Welsh Branch at the City Hall, Cardiff.

ADVERTISERS' ANNOUNCEMENTS

THE WELLCOME FOUNDATION LTD. announce two new vaccines against epidemic diseases of dogs. They are "*Epivax-Plus*," a combined vaccine against distemper, hard pad, and contagious hepatitis; and "*Faunolen*," is the first live vaccine to be developed against hepatitis.

MESSRS. C. J. HEWLETT & SON LTD. announce the introduction of ALBOVEN. The preparation consists of a 20 per cent. sterile solution of highly purified bovine serum albumin developed in collaboration with Povite, Amsterdam, for intravenous use as a veterinary blood volume expander. It is initially intended as a treatment for surgical and similar types of shock in dogs and cats with respective doses of 5-15 ml. and 2-10 ml. The standard pack will be a 10-ml. multi-dose serum vial.

Letters to the Editor

The views expressed in letters addressed to the Editor represent the personal opinions of the writer only and their publication does not imply endorsement by the B.V.A.

Serum Transaminase Activity in Cattle

Sir,—Human blood serum exhibits a number of different transaminase activities and of these the glutamic-oxalacetic transaminase (G.O.T.) has proved of considerable value in the detection of necrosis of heart and liver cells (La Due *et al.*, 1954; Keele *et al.*, 1958; Baron *et al.*, 1958). As every other tissue of all animals investigated has a definite G.O.T. activity, destruction of these tissues (*e.g.* skeletal muscle, lung) may produce elevated serum levels. The simple method of estimation of Reitman and Frankel (1957) using a visual-range photometer has brought the test within the scope of the ordinary clinical laboratory. It seemed possible that this determination might prove valuable for the detection of liver cell necrosis in cattle and this was investigated with reference to possible interference by destruction of other tissues.

Thirty-four normal adult cattle, including 6 in oestrus and 2 at parturition, gave serum G.O.T. activities ranging from 38 to 102 Frankel units (F. units) with an arithmetic mean of 64.9 F. units. This is a wider range than that reported by Cornelius *et al.* (1959).

Results within this range were obtained in mastitis (6 cases) fatal peritonitis (2 cases), displaced abomasum (2 cases) and one case each of traumatic reticulitis, actinobacillosis of the tongue, torsion of intestine, helminthiasis and photosensitisation. One case of severe cirrhosis of liver with dropsy (chronic fascioliasis) together with a displaced abomasum, one case of metritis associated with retention of the placenta and one case of metro-peritonitis with retention of placenta were also within the normal range.

Slight elevations in serum G.O.T. activity (up to 110 F. units) were obtained in 3 out of 4 cases of acute enteritis and 3 cases of Johne's disease. Three out of 4 cases of acetonaemia with constipation showed increases up to 138 F. units. One case of pneumonia had a level of 280 F. units.

In one case of fatal toxic mastitis the serum G.O.T. rose from 200 F. units to 1,000 F. units terminally. At autopsy this animal was found to have a fatty liver with cirrhosis.

In 7 cases of hypomagnesaemia, one was within the normal range, 2 gave levels of 130-140 F. units and one progressively rose from 620 units to 925 F. units terminally 3 days later. At autopsy a fatty liver with cirrhosis was discovered. Three other fatal cases all had raised activities terminally from 150-260 F. units.

One fatal case of transit fever with emaciation had a serum activity of 680 F. units and at autopsy the liver was macroscopically normal.

Of 14 cows with milk fever, 6 were within the normal range, and these were either standing or able to stand within a quarter of an hour of receiving calcium therapy. In 2 cases the activity was 120 F. units and these were both able to stand 3 hours after calcium therapy. In one case the serum activity was 150 F. units and this animal was able to stand after 5 hours, having received more calcium at 4 hours after the initial dose. Two cases (serum G.O.T. 190 and 230 F. units) took 8 to 10 hours to stand, receiving more calcium after 4 hours. One case (G.O.T. 370 F. units) took 16 hours to stand, receiving more calcium after 4 and 15 hours. These animals were all able to eat concentrates after calcium therapy.

One case of milk fever (serum G.O.T. 460 units) received calcium therapy but died after 3 days without rising or eating of its own accord, and was found to have a fatty liver at autopsy. Just before death this animal had a serum G.O.T. of 2,000 F. units.

Another case of milk fever was investigated for 3 weeks. When first seen this cow had been unable to rise for over 24 hours and had a serum G.O.T. of 600 F. units. After calcium therapy she stood, and the next day had a serum G.O.T. of 1,000 units. On the third day of illness the serum activity was 1,100, the 4th day 560, 5th day 650, 7th day 290, 10th day 212, 14th day 186, 23rd day 102. The fall in serum G.O.T. was related to rise in milk production from 2 gallons on the 5th day to 4½ gallons on the 23rd day (half a gallon more than the yield before onset). During the early part of recovery the cow would eat only grass or hay, refusing all concentrates. Tests for ketone bodies in serum and milk were negative.

Two cases of a syndrome clinically resembling acetonaemia but without ketonaemia or constipation have had increased serum activities of 330 and 1,150 F. units. Both had serum calcium and magnesium levels within the normal range.

The work will be published in detail later.

We wish to thank various farmers for specimens from normal cows, veterinary surgeons in the practice for specimens from cases, and Mr. P. Welch and his staff for technical assistance.

Yours faithfully,

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